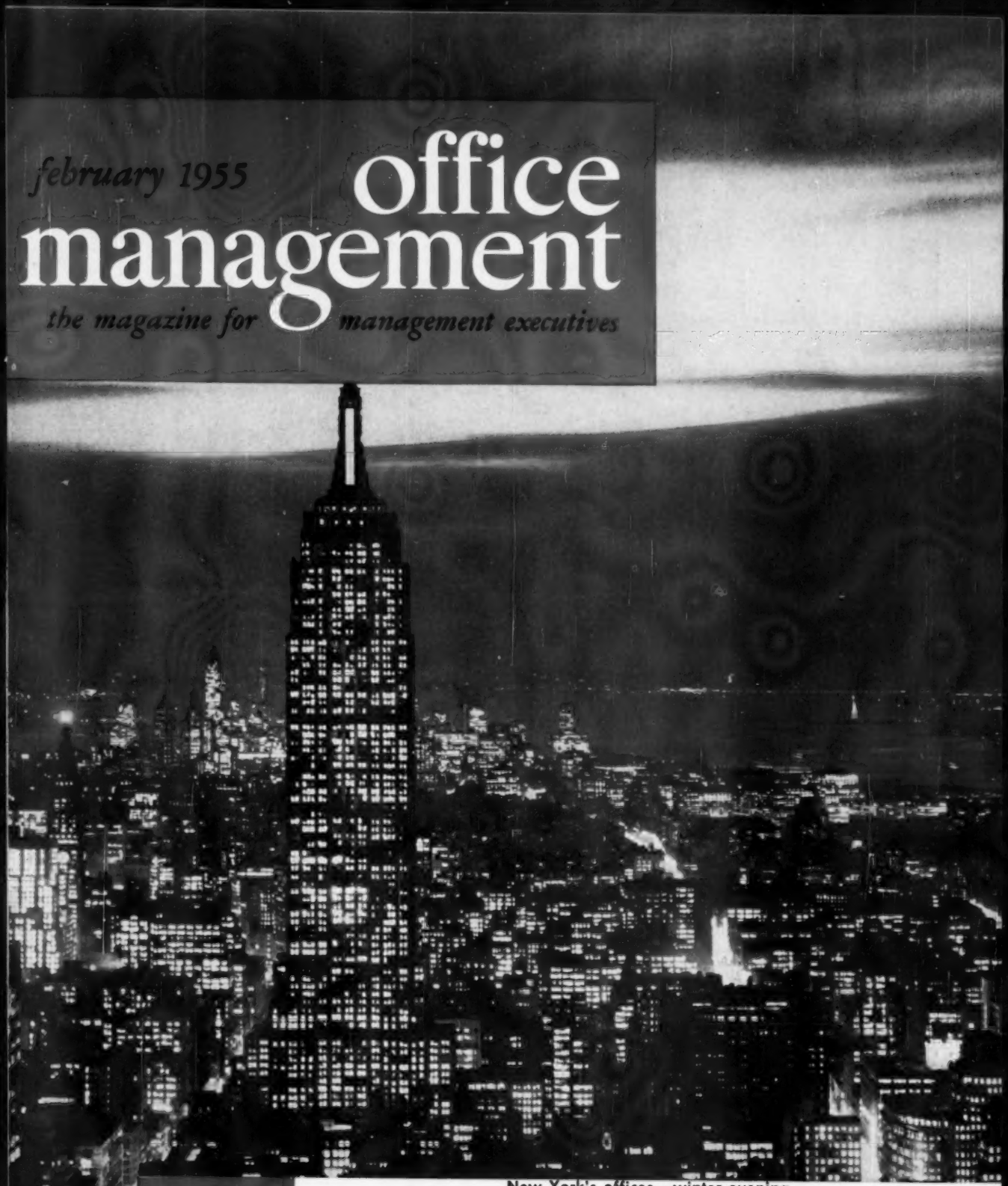
february 1955

office management

the magazine for management executives



New York's offices—winter evening

featuring

- Methods planning—when, where, how?—*where does a company start?*
- Chicago seminar and business show—*conference program outlined*
- Follow that sales order!—*to streamline all company procedures*

Remington Electric typists are "all-round" typists...

No need for "*typed*" typists in your office any more! *The Remington Electric* is "at home" in today's "electric-manual" office *right from the start—and always*, thanks to its fatigue-reducing "Natural Slope" keyboard, normal operating features and non-misfiring key action. It eliminates costly "changeover" delays when new typists are started... when typists are transferred from departments equipped with manual typewriters... or when vacation and absentee vacancies are temporarily filled.

Remington Rand
THE FIRST NAME IN TYPEWRITERS

Send for free booklet "Electric Typing Dividends" (RE8612), Remington Rand, Room 1221, 315 Fourth Avenue, New York 10, N. Y.

SALES OPPORTUNITY

Hundreds of firms are increasing sales—and reducing sales costs—through the planned use of Long Distance telephone service.

We have specific suggestions based on their experience which we'll be glad to pass along to you. Just call the nearest Bell telephone office. A representative will visit you at your convenience.

LONG DISTANCE RATES ARE LOW

Here are some examples:

New York to Philadelphia	50¢	Chicago to Pittsburgh	$1.15
Cleveland to Indianapolis	90¢	Boston to Detroit	$1.40
Atlanta to Cincinnati	$1.10	Washington, D. C., to San Francisco	$2.50

These are the *daytime* Station-to-Station rates for the first three minutes. They do not include the federal excise tax.

CALL BY NUMBER.
IT'S TWICE AS FAST.

BELL TELEPHONE SYSTEM

Macey-Fowler, of course

DESK DESIGNED BY GEORGE W. REINOEHL

Macey · Fowler NEW YORK: 305 EAST 63rd STREET • TEmpleton 8-5900
BOSTON: 150 CAUSEWAY STREET • RIchmond 2-1800

office management

Office Methods, Equipment, Personnel, and Purchasing
Sponsor of the "Office of the Year" Awards

february, 1955

Volume XVI No. 2

ONE of the world's most impressive sights—New York's offices on a winter evening, seen from the Harbor or the rivers, or from the vantage point of one of the very tall buildings, or a plane.

Our cover photograph (by A. Devaney, New York) is taken looking to the south, along the middle and lower reaches of Manhattan Island, where more offices new and old are concentrated than anywhere else on earth—all glittering and busy as the day's activities roll toward closing time.

in this issue

Beginner—new style *(Editorial)* 15

Methods planning—when, where, how? *(Part 1)* 16
by Ralph W. Fairbanks

The bank with glass walls 20

Should accountants plan industrial accounting? 22
by Edmond W. McNamara

Chicago seminar goes "atomic" 23

Follow that sales order! 24
by Martin Smith

Photocopying speeds production control 26
by Helen R. Wilson

New tax depreciation methods *(Part 2)* 28
by Willard F. Stanley

Every office can have an effective library 30
by Arthur N. Bishop

Automation in the office 32
by Robert M. Smith

Case of the month 34

Tools of the office series 49
This month: *equipment for integrated data processing*

What to do? 80

M. A. Geyer, President; Donald McAllister, Vice-President and General Manager; Thomas V. Murphy, Editor; Hugh Ward, Advertising Director; John M. Smythe, Midwest Manager; Robert M. Smith, Managing Editor; Robert Beeman, Walter A. Kleinschrod, Alvin M. Hattal, Marguerite Polyniak, George A. Tice, Associate Editors.

Advertising Staff: James E. Neary, Jr., Advertising and Business Manager; Fred Steinhilber, Charles B. Rosengren. *Circulation:* M. T. Weeks, Manager. *Production Department:* James V. Quirk, Manager; Milton Sharon, Assistant Manager. *Art Director:* Joseph Hochfeld.

Member of
Audit Bureau of Circulations

Member of
Associated Business Publications

Published monthly by

GEYER-McALLISTER PUBLICATIONS

Andrew Geyer-McAllister, Inc.
Publishers since 1877

212 Fifth Ave., New York 10, MUrray Hill 9-4411

branch offices

Boston 10, 212 Summer St., Room 600, (Hancock 6-5390), Charles G. Kretschmar; *Chicago 1*, 228 North La Salle St. (State 2-2911), John M. Smythe, William Murray, Richard P. McClanahan; *Los Angeles 5*, 3257 W. 6th St. (Dunkirk 7-6149), Chris Dunkle & Associates; *Editorial Representative:* J. Richard Iander; *San Francisco 5*, 681 Market St. (Douglas 2-2597), Alexander Rattray; *Dallas 19*, 3908 Lemmon Ave., (Lakeside 2322), Joe Sanders and Associates.

Subscription: $3 a year in United States and in possessions, Canada, Mexico, Cuba, Central and South America. Other countries $9 a year. Single copies 35¢. Copyright 1955 by Andrew Geyer-McAllister, Inc.; all rights reserved. Also publisher of *Geyer's Dealer Topics, Who Makes It and Where*, and *The Gift and Art Buyer*.

Please give 60 days' notification of any change of your address.

Reentered as second class matter June 29, 1953, at the Post Office at New York, N. Y., under Act of March 3, 1879.

Would you believe it was mimeographed?

The new versatility of MODERN mimeographing, along with its speed and ease, has been a complete surprise for many people. As a result they are now producing more kinds of copies than ever before with this proved yet ever-developing process.

For more information about MODERN mimeographing and the new electric A. B. Dick mimeograph, Model 437, simply clip the *Information Request form below to your letterhead and mail to A. B. Dick Company, 5700 Touhy Avenue, Chicago 31, Illinois. A. B. Dick mimeograph products are for use with all makes of suitable stencil duplicating products.

*** Information Request**
See above.
Dept. OM-255

A·B·DICK
THE FIRST NAME IN DUPLICATING

A. B. Dick and 8 are registered trademarks of A. B. Dick Company

Human problems to get more attention, say AMA speakers

Human beings will receive more attention from management than ever before, in spite of all the advances toward "automating" the office, said speakers at the American Management Association's recent conference on training, held at the Atlanta Biltmore Hotel.

Gerald L. Lund, director of training, Otis Elevator Co., New York, predicted that companies trying to develop their executives will be giving more attention to people and less to paper, that less time will be spent in drawing up management development programs and more time will be given to discovering individual needs and tailoring development to those needs. He felt that development plans as such will be less formal and less complicated.

Said Mr. Lund, tomorrow's management training will stress the skills involved in human interaction. More attention will be given to developing motivation and "weighted" insight in the individual and less to mere repetition of facts. There will be more training in personal skills, such as self-expression, as a means of building management skills. Management itself will emerge as a profession with a body of teachable knowledge in which managers can be trained.

Other developments anticipated by the speaker will include a shift of emphasis from formal counseling to development by means of day-to-day superior - subordinate relationships, the provision of more opportunities for people to develop themselves, and the exercise of more effort to make them want to do it. Understanding and use of motivation will be improved, and there will be more attention to improving attitudes and encouraging self-analysis and self-improvement.

There will also be more stress on the continuing nature of training, said Mr. Lund. People do not change permanently; they slip back unless development goes on all the time.

Spencer J. Hayden, director of training, Metal & Thermit Corp., New York, said that company supervisory training programs have been putting too much emphasis on "integration," on getting along well with others in a group, and not enough on leadership, on influencing the actions of others.

Tomorrow's training, he predicted, will seek to develop individual leader-

"National Accounting Machines save us $54,000 a year . . . return 120% annually on our investment!"

—W. A. SHEAFFER PEN CO., Fort Madison, Iowa

"We purchased our first National Accounting Machines 27 years ago. Their versatility and dependable service made it profitable for us to expand our use of Nationals as time went on and new models were developed.

"We now use National Accounting Machines for Accounts Receivable, Accounts Payable, Payroll, Labor Distribution, and General Ledger Posting, as well as a variety of accounting reports.

"We estimate that our Nationals (which cost $44,000) save us $54,000 a year. Thus savings repay the entire cost every 10 months—an annual return of 120% on our investment.

"Ease of operation and dependability of National equipment provide additional savings in employee satisfaction, and minimum down-time."

W. S. Erdtsieck
Vice President & Treasurer

In your business, too, National machines will pay for themselves with the money they save, then continue savings as annual profit. Your nearby National man will gladly show how much you can save—and why your operators will be happier.

*TRADE MARK REG. U. S. PAT. OFF.
National
ACCOUNTING MACHINES
ADDING MACHINES • CASH REGISTERS

THE NATIONAL CASH REGISTER COMPANY, DAYTON 9, OHIO
949 OFFICES IN 94 COUNTRIES

HOW XEROGRAPHY (ze-rog-ra-fee)

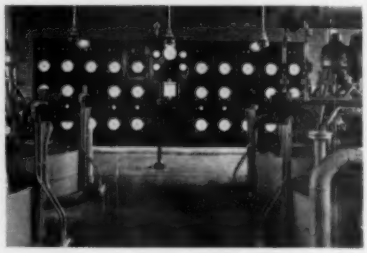
cuts duplicating costs $8,000 a year at *Taylor Instrument Companies...*

Plus —

speeding paperwork! saves 7872 hours of "waiting-time" a year!

Taylor Instrument Companies, the world's largest manufacturer of indicating, recording and controlling instruments for home and industry, uses xerography to cut paperwork duplicating costs. In addition to tangible cost savings of more than $8,000 a year, Taylor speeds paperwork by eliminating six hours of typing and proofreading time a day. AND, since using xerography, 984 8-hour days of waiting time are saved yearly, compared with former methods.

Price lists, bulletins to salesmen, factory office forms, changes in branch office personnel, facsimile letters for answering inquiries, magazine articles, confidential reports to executives, are copied onto paper masters by xerography quickly and economically. These masters are used to run off multiple copies on an offset duplicator.



The Taylor controllers (center) automatically maintain pressure and temperatures in the reactors at this chemical processing plant. Today a large percentage of the company's output goes to industrial plants.

Anything written, typed, drawn or printed can be reproduced with photographic accuracy in about three minutes by xerography onto an offset paper master for runoff of multiple copies on an offset duplicator. Original copy may be enlarged, reduced or reproduced same size by xerography in XeroX® copying equipment. Copies can be made from one or both sides of original material by xerography.

For use in diazo type machines, translucent intermediates can be made from any original subject in the same speedy way.

There is no limit to the versatility of the dry, electrostatic xerography process in paperwork duplicating applications. It is now possible, with xerography, to produce up to eight copies including an offset paper master or translucent master *from one xerographic image.*

Write **for proof of performance folders showing how Taylor Instrument Companies and companies of all kinds are cutting duplicating costs and speeding paperwork with xerography.**

THE HALOID COMPANY
55-38X HALOID STREET, ROCHESTER 3, NEW YORK
BRANCH OFFICES IN PRINCIPAL U.S. CITIES AND TORONTO

XEROGRAPHY

The fastest, cheapest, most versatile way to make masters for duplicating

ship as well as group teamwork. There will be a trend toward more individualized training, particularly that given by a man's immediate superior. This training will be on a day-to-day basis, with less emphasis on telling people what to do and more on letting them develop themselves by talking out their problems and theories day after day with an understanding boss.

The speaker also felt that both in formal group training sessions and in informal day-by-day training, the trend will be toward letting the supervisors themselves control the training. Instead of accepting a mass training program handed to them by management, they will be encouraged to decide themselves what they need to know and want to learn.

More than 300 business executives from all parts of the country attended the two-day conference, which was the first national conference ever conducted in the Southeast by the AMA.

Problems of small business to be discussed at CCNY

A special seminar course to help solve problems of administrative management for owners and operators of small businesses will be given by the Baruch School of Business, City College, New York, on ten successive Wednesday evenings, beginning on Feb. 16, according to Dr. Robert A. Love, director of the Evening and Extension Division.

The ten evening workshops will be under the supervision of Prof. Huxley Madeheim, and will be conducted by specialists in each of the fields covered. Students will have the opportunity to present and analyze problems encountered in the operation of a small business, with possible solutions worked out.

The seminar will be held at City College Midtown Business Center, 120 W. 46 St., New York. Information may be obtained by writing to Room 1610, The City College Baruch School of Business and Public Administration, 17 Lexington Ave., New York.

New offices

The Johnson Chair Co. has announced the opening of new and enlarged offices in Room 7109, Merchandise Mart, Chicago.

Parker Steel Products, Inc. has moved its factory and offices to 54-68 N. 11th St., Brooklyn, N. Y.

What Size Chair does your Secretary "WEAR?"

Royal fits 'em all— short, wide 'n tall . . .

Royal provides the perfect secretary with the perfect secretarial chair. Extra wide, deep-cushioned seat and backrest figure prominently in her comfort. (No matter how prominent her figure) Exclusive "Micro-Hite" control and completely adjustable backrest bring Royal as close to "Custom-Tailored" as you can get. She'll be more comfortable (And more efficient) in a new extra wide Royal secretarial chair.

1. Model No. 1265-N Features luxurious molded foam rubber seat and free-floating, 4-way adjustable backrest. Equipped with all steel seat pan mounting, molded rubber scuff guards and ball bearing casters.

2. Model No. 1277 Extra comfortable with molded foam rubber seat and 4-way adjustable padded backrest. Marvelous "Micro-Hite" mechanism adjusts seat with fingertip control.

3. Model No. 1276-N Budget priced, with features found on much more expensive models—foam rubber seat, "Micro-Hite" control, padded back and rubber ball bearing casters.

4. Model No. 1263 Extra large, deep, molded foam rubber seat and backrest. Free-floating backrest and all steel seat pan mounting give firm support. Fitted with molded rubber scuff guards and soft, rubber ball bearing casters.

HERE'S PROOF of Royal's superior construction . . .

Made of durable heavier gauge steel. Fully welded (Not spot welded) throughout. Longer wearing, *fully molded* foam rubber cushion is supported by all steel seat pan. Equipped with molded rubber scuff guards and ball-bearing casters.

ROYAL METAL MANUFACTURING CO.
175 N. Michigan Ave., Dept. 22, Chicago 1
Factories: Los Angeles, Michigan City, Ind., Warren, Pa., Walden, N.Y., Galt, Ontario
Showrooms: Chicago, Los Angeles, San Francisco, New York City. Authorized dealers everywhere

Royal®
METAL FURNITURE SINCE '97

See your nearest Royal Dealer or Mail this coupon for complete information

ROYAL METAL MANUFACTURING CO.
175 N. Michigan Avenue, Dept. 22, Chicago 1, Ill.

Please send me complete information on your new, extra comfortable secretarial chairs.

NAME_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

13th Annual

SEMINAR and BUSINESS

Show

FEBRUARY 28—MARCH 1-3

CONRAD HILTON HOTEL CHICAGO

Alerting Today's Office Manager

Automation • Techniques • Organization Management

At the Conrad Hilton Hotel, Chicago, a timely, informative seminar for every office manager, plus a spectacular display of the newest equipment and methods.

Sponsored By The

OFFICE MANAGEMENT ASSOCIATION OF CHICAGO

105 W. Madison St. • Illinois

In conjunction with Northwestern University

Insurance companies plan Los Angeles office building

The Employers' Group Insurance Companies are erecting a new office building in Los Angeles. It will be a three-story structure, most of it air-conditioned.

There will be a lunchroom for employees and a soundproofed room for punched card equipment. Movable interior partitions will be used.

AMA personnel conference set for Chicago

The American Management Association will hold its mid-winter personnel conference at the Palmer House, Chicago, Feb. 14-16. A feature of the conference will be the use of closed circuit television to show actual labor-contract negotiations.

Among the speakers scheduled to present papers before the conferees are the Hon. James P. Mitchell, U. S. Secretary of Labor; Louis B. Seltzer, editor of *The Cleveland Press;* and Robert E. Wilson, board chairman, Standard Oil Co. (Indiana).

Subjects to be covered include the following: "Pivotal Demand: The Guaranteed Annual Wage," "Taft-Hartley Is Not Static," "The Labor Pot Is Bubbling," "The Union Welfare Fund," "Can Tests Predict An Employee's Potentiality?" "Personalize Your Training Program," "The Evolution of a Management Development Program," "Can the Employee Be Loyal to Both Company and Union?" "Winning Union Support for Higher Standards of Production," "Negotiating a Competitive Company-Union Contract," "The Businessman's Stake In Liberal Education," "The Problem Employee," and "Control and Motivation of Office Employees."

Details concerning the conference may be obtained from the American Management Association, 330 W. 42nd St., New York.

"Correlation"
by STEEL AGE

Typical Correlated Group

5560 Executive Desk

5583 Bookcase

. . . a distinguished new family of integrated office furniture

This is *Correlation* . . . a beautiful *new* family of custom quality STEEL AGE desks . . . deliberately designed to combine fresh new styling with complete adaptability to changing requirements in space and function.

Correlation enables your customers to do *this:*

Create dozens of types and sizes of work stations quickly and easily, because each unit is *correlated.*

Adapt individual desks to new job or space demands without a completely new office furniture investment. Tops, pedestals and end panels are fully interchangeable.

Enjoy the new comfort and work-ease of *Correlation's* convenient new 30" depth and new whisper-quiet, nylon roller storage drawer operation.

Add stimulating new color-styling through the choice of seven attractive finishes and 14 desk top materials.

● STEEL AGE *Correlation* units cost less than most conventional steel desk units. Write today for details on this exciting new concept in correlated office planning.

CORRY-JAMESTOWN MFG. CORP., CORRY, PA.

Steel Age

"The Quality Choice of Modern Offices"

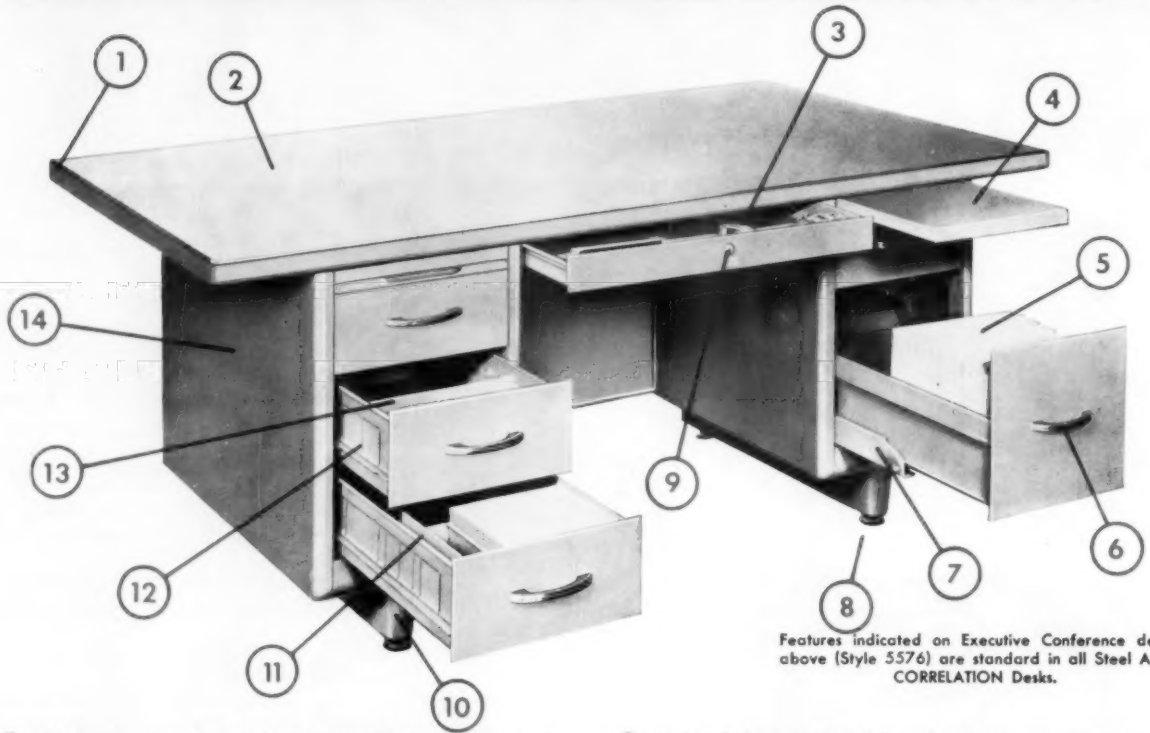
More than 50 correlated units to choose from.

5576 Conference Desk

The complete Correlation Line is illustrated in new full-color folder. Write for your free copy today.

Branch Offices: Atlanta • Boston • Chicago • Dallas Detroit • New York • Oakland • Philadelphia • Seattle

Steel Age "CORRELATION" Desk Units set a New Standard in Comfort and Efficiency



Features indicated on Executive Conference desk above (Style 5576) are standard in all Steel Age CORRELATION Desks.

1. Distinctive top design increases styling, comfort and available working area.
2. Smooth, eye-easy tops in a variety of attractive, durable materials.
3. Roomy convenience tray in kneespace drawer.
4. Handy reference shelf. Glass top or convenience tray shelves may be substituted if desired.
5. Ample vertical filing space and positive side-locking compressor.
6. Attractive aluminum hardware.
7. Full-progressive ball bearing suspension assures effortless operation of vertical file drawer.
8. Unbreakable plastic gliders that level on uneven floors and provide any height from 29" to 30½".
9. General automatic lock in kneespace drawer locks all drawers.
10. Modern, unbreakable fiberglass pontoons give more foot room, facilitate cleaning and add to the appearance of the desk.
11. Storage drawers can accommodate 5 x 3, 6 x 4 or 8 x 5 removable card trays.
12. Easy-operating storage drawers of generous capacity operate on quiet nylon and Buna "N" rollers.
13. Each storage drawer equipped with adjustable drawer partition.
14. Durable baked enamel finish.

Steel Age

The Quality Choice of Modern Offices

Manufactured by

CORRY-JAMESTOWN MFG. CORP., CORRY, PA.

Branch Offices: Atlanta • Boston • Chicago • Dallas • Detroit • New York • Oakland • Philadelphia • Seattle

Quote and Unquote

The function of fault-finding

Edward L. Meyerson, New York:

A fault-finder, in terms of definition, is not easily definable because of the many aspects and shadings of criticism. Also, good intent, on the part of the fault-finder, becomes unimportant if the effect is to negate good will and not accomplish a constructive result.

To be more specific, and measuring the foregoing in terms of business practice, a successful concern cannot function properly without a contrived system of operation subject to revision, discussion, further change and frequent fault-finding.

The smooth functioning executive (one who rides the bumps with the least upset) recognizes both the value and shortcomings of fault-finding. He employs it in his administrative procedure solely to further the best interests of his organization, and not to browbeat or humiliate his subordinate. This method of tact is a psychologically sound approach to criticism, and must necessarily attain the best results; first, by objectively pointing out the error; second, by arriving at a proper analysis for correction and future procedure, and third by maintaining the confidence of the employee in his maximum efforts to function efficiently.

This summation does not refer to an example where the probation period indubitably reflects incompetence and indifference. In such instance there is, of course, no question of the technique of fault-finding, but ordinarily a severance of employment.

It is not my proposal to coddle a subordinate. Instead, I suggest that adroit executive criticism will create more productive effect and encouragement than can be otherwise attained in tackling the perennial problem of human error.

Metal Office Furniture Co. changes corporate name

The Metal Office Furniture Co., of Grand Rapids, Mich., manufacturers of "Steelcase" office furniture, has officially changed its corporate name to Steelcase, Inc. Among the advantages anticipated from this change, according to President Walter D. Idema, is that the name of the company and its trademark will now be identical.

With the editors—

AS this is written, requests are still pouring in for the hundreds of catalogs and brochures specially listed in the January issue.

There was a particularly heavy response to this feature, and many letters commenting on its convenience as a means of bringing reference files up to date.

Typical letter—from the office service manager of a large company: "PLEASE SEND the literature indicated by the numbers checked on the enclosed coupon from January *Office Management.*

"Thank you very much for the opportunity to participate in this p r o g r a m—this service certainly makes it much easier for all concerned to cover a broad field of subjects of interest to the office."

▪

TALKING of letters, here is one regarding the recent article, "Middle Management Is The Key," by Carolyn N. Nelson, of Mutual Trust Life Insurance Co. It comes from Harold L. Croter, supervising accountant of Sacramento (Calif.) County Hospital:

"THANK YOU for the excellent article in your December issue, 'Middle Management Is The Key.' The author defines simply and profoundly something that top management has been unable to say in words.

"There is no doubt that this is the finest and most complete definition of a junior executive that I have ever encountered. Mr. Webster should include it in his next edition. The understanding and appreciation of my position has been increased many fold by this revealing article.

"Thank you again, and you can recommend the fine article to junior executives, career people, and even top management, with my approval. There is much to be gained by reading the article and much lost to those who missed it."

Robert M. Smith
Managing Editor

SOME of our "Office of the Year" Award-winning offices will soon be undergoing scrutiny by an important British visitor—the managing director of a British corporation proposing to build a modern block of offices to accommodate initially about 600 employees but with facilities to expand to 1,000 employees in about ten years' time.

"The directors are anxious that the new offices shall be of the very latest design, incorporating all the best ideas in labor-saving equipment and layout," this gentleman writes.

▪

A lead-off feature in March *Office Management* is going to be a report on the status of automation at the offices of United States Steel a year after this pioneer large-scale automated office came into the news.

In March and April, 1954, *Office Management* was the first magazine to give the details of United States Steel's highly significant experiment in applying the principle of integrated data processing in the performance of office work. There was the implied promise that when this project had been completely tested out by actual day-by-day performance, *Office Management* would summarize the results.

▪

ALSO among the March features will be the installment of the "Tools of the Office" series devoted to duplicating equipment.

This particular Tools topic has always been an exceedingly popular one with readers. In the new Tools format the feature will present a discussion of new trends of design and usage and a valuable summary of specific information on duplicating equipment suppliers and their products.

Thomas V. Murphy
Editor

Robert Beeman
Associate Editor

A typical TECHNIPLAN arrangement for efficient departmental set-up.

you'll find GLOBE-WERNICKE office equipment everywhere!

Globe-Wernicke TECHNIPLAN is the original modular steel office equipment. It applies modern principles of design and engineering to the problem of your particular office layout. TECHNIPLAN allows you to utilize to the maximum a given amount of space, and at the same time increase personnel comfort and efficiency. With TECHNIPLAN'S flexibility, an almost unlimited number of arrangements is possible, and groupings can be tailored to insure easy communication with convenient desk-to-desk work flow. Free-standing partitions are available to form ideal private offices, executive suites or departmental sections. TECHNIPLAN means modern appearance...maximum efficiency in your office. Your Globe-Wernicke dealer will be glad to demonstrate TECHNIPLAN. He's listed in the "Yellow Pages" of your phone book. Or write us direct.

GLOBE-WERNICKE

CINCINNATI 12, OHIO

MANUFACTURERS OF THE WORLD'S FINEST OFFICE EQUIPMENT, SYSTEMS, FILING SUPPLIES AND VISIBLE RECORDS

editorial

Beginner—new style

AS OFFICE AUTOMATION becomes increasingly more important, it is essential that the office should attract to itself a type of employee that it has not, generally speaking, been accustomed to find among its beginners—that is, young people of college graduate level possessed of imagination and initiative, trained in the processes of logical thought, capable of approaching the problems of office work in a truly challenging way rather than in the spirit of conventional acceptance, and who can see in automation not the dull super-mechanical routine which the uninformed believe it to be, but a highly flexible weapon with which to combat deadening paperwork.

Personnel people often complain of the failure of the office to draw more college people to it, and remark on the fact that a high school graduate who knows stenography and typing has a far better chance at a good office job than any girl with a college diploma who has no secretarial skills. The college girl knows this and turns to the office only as a temporary expedient or a last resort.

With the coming of automation there is a genuine need for people of good educational background and trained habits of thought who can begin fresh with the new principle, and grow up with it and the special precedures devised for its application.

Here's a promising area for office public relations to cultivate!

Part 1—

Methods planning—when, where, how?

How should a company go about planning a methods improvement program? Analyzed here are some of the factors that should be considered—

by Ralph W. Fairbanks
Fairbanks Associates, Management Consultants, Greenwich, Conn.

METHODS IMPROVEMENT is a good thing but—

Just how does an office go about it?

Who plans the program? Who is responsible for carrying it out? How can the company tell just how much money it is justified in investing in a methods improvement program? How can the company tell whether a limited or very ambitious revision of its present program is best?

In the last analysis, how is it sure that systems revision is called for at all?

Methods improvement in the office is desirable. Everyone agrees on that. Everyone agrees that he's against sin, too. Principles are a good starting point, but general principles have to be followed by specific plans before they can become effective.

And it is in the area of specific plans that so many management executives are completely lost today.

Step-by-step analyses of methods improvement within a given company are at least clear, but they suffer the basic disadvantage of applying to that one company, of being designed to meet its particular problems. They lack the universal application that can serve as a guide to other offices.

But an example of how a methods improvement program was projected for a given company, was outlined for that company before the detailed planning began, might serve as a better guide. The general standards by which one company decides whether an improvement program is justified, how and by whom the program is to be administered can be valuable background for other companies.

Methods function—staff or line?

We were called in as consultants some time ago by a manufacturing company in the midwest. The company already had a methods group, as a subsidiary unit within the General Products Division—one of five divisions represented on the Controllers Committee. The Controllers Committee—comprising the Controller and the heads of the Accounting, Administrative, General Products, and Customer Services Divisions, and the Branch Plants Controllers—called on us to develop recommendations concerning a methods group as a staff function of the company, rather than as a unit within a line division.

In cooperation with the Controllers Committee, we analyzed the scope of methods activity under the company's original table of organization in relation to the original department costs in order to determine the potential area of methods department influence. Next we compared the relative efficiency of various departmental divisions in relation to the potential efficiency that might be achieved by instituting an all-inclusive methods program embracing all divisions.

We believe the steps by which we achieved these comparisons — and the further steps outlined as a result of these comparisons—are general enough to fit all companies considering the pro's and con's of an all-inclusive methods reorganization. That is the basis of this article.

Our first step was to define the purpose and scope of a possible methods improvement program by:

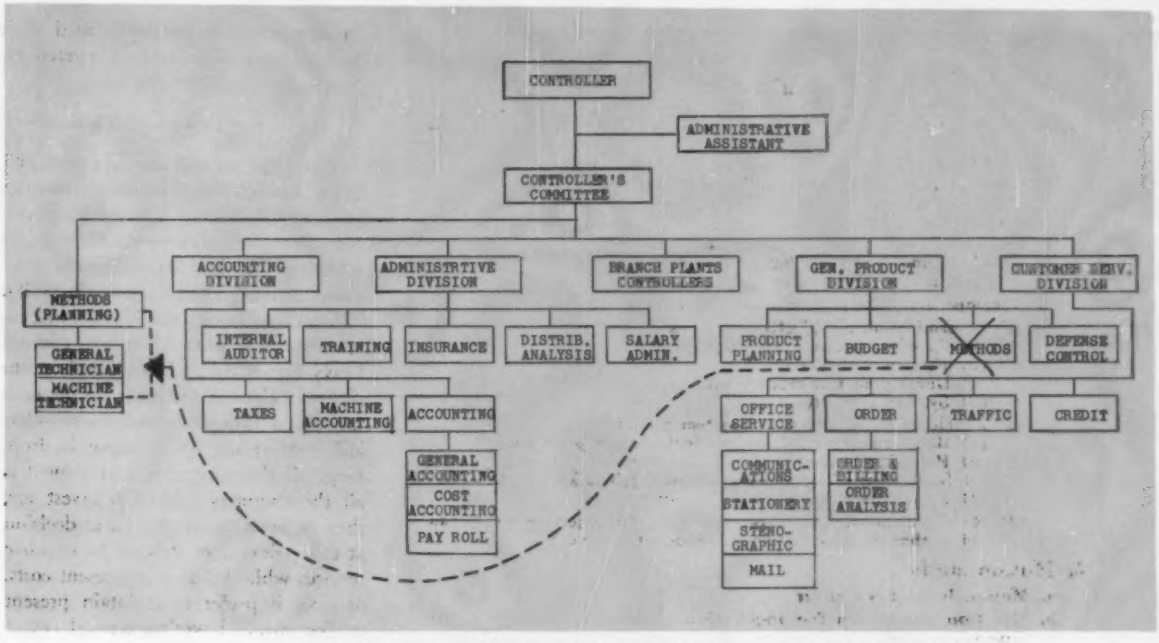
A. Comparing the current scope of methods improvement activity with current office costs in order to determine the degree of emphasis that should be placed on a more ambitious methods refinement program.

B. Comparing the current procedure with new methods techniques in order to relate current efficiency with a potential area for clerical savings, increased speed of processing volume input, and greater flexibility of operation.

C. Arriving at the best possible methods function for that particular company in relation to A and B.

D. Last of all, deciding on the number of methods technicians that would be required to do a good and complete job of planning an overall program of immediate and long range system refinement.

The actual goal of business is to make money and to continue making money in the future. Therefore the first and determining factor in deciding whether to embark on an ambitious



Eventual recommendation in the company discussed in this article was that the Methods Planning function be taken from a place in line department, placed on a staff basis directly under Controller's Committee representing overall company management

methods program should be economic. Here it is wise to look not only at the company's current economic picture but also its future one.

In a company employing two or three people in the office, an expensive methods improvement program would obviously be quite ridiculous. Methods might be improved, but the costs would be out of all reasonable proportions to the savings. A common sense ratio like this should be applied all along the line. A company with an annual payroll of $70,000 is going to require more time before savings achieved from an elaborate methods improvement program can compensate for costs of the program than is a company with an annual office payroll of $700,000.

Is improvement needed?

Furthermore, the need for methods improvement can also be more or less roughly estimated from an economic viewpoint. If an office's hourly clerical costs are decreasing while the office's output is increasing, overall methods improvement is obviously not a life and death matter. It is the reverse trend that is dangerous—a continuing rise in hourly clerical costs during a period when clerical output is dropping. This is a danger signal, obviously, and the particular warning shows the need for at least some thought to be given to overall methods improvement.

This was the situation at our midwestern company's office when we were called in. Analysis of average clerical costs showed an increase of approximately 23 per cent within one year. Thirteen per cent of this was accounted for by wage increases—ten per cent by additional man-hours required to do the work. While it was true that part of the additional hours needed had been created by management demands for additional information, it was still a danger signal.

And the company fulfilled the first economic condition for methods improvement, since it had a substantial number of clerical personnel in the five line divisions headed by the members of the Controllers Committee — 240 clerks. Therefore improvement could be expected to effect savings large enough to pay the costs of the improvement.

Thus, from the economic viewpoint —which should always be the first one in deciding whether to undertake any methods improvement program — the client was justified in analyzing its operations with a view to complete systems overhaul.

What does this involve? Where does a company start?

Systems revision sounds awesome, but like most other effective achievements, it is based on simple common sense, a return to first principles. There are two necessary steps in planning overall systems revisions within an office:

Basic analysis, division by division, of what that division is expected to do in the general company picture, what management requires of it, what functions it must fulfill in order to meet management demands.

Then, still in the most general terms, a program of overall system refinement is devised, based upon the fundamental principle of management's need for operating and control data plus the development and installation of new techniques in clerical operations to provide maximum effectiveness.

The techniques used in developing a program of system refinement can be divided into two basic parts:

1. Systems development in methods and equipment
2. Personnel controls.

These two factors are interrelated, and must be considered together if the best overall results are to be obtained. In both areas, however, some problems are much more pressing than others, and therefore a short-range program should always be developed to cover the weakest spots as soon as possible. But the short-range program must always be consistent with the aims and general design on the overall program, even though full conversion to a new

EXHIBIT 1

A. Operation Research and System Evaluation Techniques Used

1. Methods study

a. Geo-operational flow chart of current methods
   (1) Action flow
   (2) Keying of forms

b. Analysis of the current system and forms
   (1) Questioning of procedures
   (2) Questioning of forms and report usage

c. Development of the "One Best Way"
   (1) Determination of objective yardsticks
      (a) Speed of processing
      (b) Economy of processing
      (c) Development of relative values
      (d) System flexibility
   (2) Development of alternative system possibilities
      (a) Basic objectives of the particular office problem
      (b) Possible mechanization of operations
      (c) Separation of simple and complex job tasks
      (d) Examination for by-product savings
   (3) Measurement of alternative plans to the objective yardsticks and mathmetical evaluation of proposed results.

2. Motion study

a. Motion breakdown chart

b. Question breakdown for application of motion economy principles
   (1) Pre-positioning of work
   (2) Confining area of movement to proper work area
   (3) Use of holding and transportation devices
   (4) Use of both hands for action
   (5) Elimination of use of hands for holding
   (6) Selection of most economic sequence of operation

B. Application of Machines, Forms and Space

1. Office machines

a. Functional classification of standard machines
b. Analysis of work loads on present machines
c. Comparison of work output, mechanical versus manual

2. Forms design

a. Simplicity and speed of preparation
b. Standardization
c. Multiple use

3. Office layout and facilities

a. Functional relationship of departments as to facilities available
b. Workable area determination

program is not scheduled for some time.

The nature and content of the short-range program will depend on:

1. Nature and complexity of the most urgent problems.
2. Management tools available for immediate application.
3. Place of these tools in a long-range development program.

These are our broad operating plans, in attaining a systems revision program. Now, how do we go about putting those plans into effect?

The techniques are standard, and can be used in varying degrees within each unit of an organization. In the case of the midwestern manufacturer, under the scope of the plan as we had originally outlined it, they were applied to each division of the Controller's Department.

First, overall requirements for each division must be determined in relation to the department embracing those divisions. It is only from such an overall viewpoint that current procedures can be analyzed in each area, and new methods devised to improve results. Any one division may by itself institute a procedure which seems to streamline its work, and reduce its costs, but if that procedure has the result of increasing another division's work and costs disproportionately, it is not economical or justified from the company viewpoint. The converse follows: a very expensive new procedure in any one division is justified if it saves more than its cost in lowered expenditures for other divisions.

Systems improvement goals

The ideal systems improvement program should offer a substantial savings in clerical overhead and equipment costs, and simultaneously achieve faster processing of daily work, increased accuracy, and greater system flexibility. This is, of course, the ideal, and cannot always be achieved, at least without heavy initial cost. But the minimum systems achievement must be the ending of the situation cited above—clerical costs rising while output is dropping. If the minimum achievement is all the company wishes to invest for, then it must make the basic decision at this point: does it want to improve services while holding its present costs, or does it prefer to maintain present services while lowering clerical costs?

And last, each individual proposal advanced to improve the overall systems design must be analyzed in terms of the same factors which originally determined whether or not overall systems revision was called for at all: costs. Any given proposal may show substantial evaluated savings, but the costs of installation and conversion may more than offset potential savings. Simple mathematics can determine whether any specific suggested procedure is to be adopted.

If estimated potential savings are greater than equipment and installation costs, annual recurring costs, plus costs of converting to the new procedure, training personnel for it, and costs of all other related factors—time needed for conversion, effect on customer service, and future development in new machines which may make the procedure obsolete within a given time—then the procedure change should be made. Unless the potential savings exceed the costs of all these factors, changing to the new procedure is uneconomical, except in cases where it offers such great advantages in improved service that some financial loss is justified.

That is a good rule of thumb at any time in determining whether systems innovations are justified on a cost basis, but it has been complicated by the emergence of electronic machines and components to take over clerical functions. This has introduced the theory of rapid obsolescence to the office for the

first time, and this factor becomes more important with the introduction of every new machine. So a condition might be attached to our old rule of thumb. The systems innovation must at least not be contradictory to possible conversion of more and more operations to electronic control at some future date. It must not go back to a pre-electronic past, and, if at all possible, it should be adaptable to use in an electronic future. The influence of automation in data processing on tomorrow's office should be a very important factor in every decision made today concerning systems revisions.

This part of overall planning can best be done with the least amount of cost, at the same time that changes in a short-range program are being developed. A further advantage would be the integration of short-range steps into a program with the use of electronic data processing machines as the ultimate goal, thus forestalling any costly mistakes in major conversion, and machine installation.

Increasing personnel effectiveness

This is one facet of a full-scale program of systems refinement. The other —and equally important one—is an increase in the effectiveness of the personnel who actually *are* the office.

Too little importance in the past has been attached to selection and placement as a means of reducing turnover, and as a means of keeping salary costs down as well. Too many offices today are approaching selection and placement from altogether the wrong angle.

Some current office operations are dull, repetitive work. We all acknowledge that. Many companies have acknowledged it to the point of rotating employees so there will be less dissatisfaction on the part of those who must do such work. Rotation of job enlargement gives every worker some dull work, some fairly stimulating work.

But actually, isn't this approaching the whole problem backward? Some people are more intelligent than others, so the converse must also be true—some are less intelligent than others. Why should we continue to try to hire the most intelligent applicants for every office job, when every rule of common sense tells us that an unimaginative and relatively unambitious employee is more apt to be satisfied and happy at dull, repetitive operations than a higher grade worker? The repetitive operations must be done; they can be done quickly and accurately by an employee who would not be at all adequate for a job demanding initiative or a fairly high degree of judgment.

EXHIBIT 2

PERSONNEL SELECTION PROGRAM

A. Purpose

To supplement personal contact and interview with an impersonal and scientific appraisal of employees or applicants as a guide for the following:

1. Selection of new personnel
2. Replacement of employees
3. Promotion of employees
4. Improvement of organization through reassignment of present personnel

B. Procedure

1. Prepare job descriptions
2. List personnel qualifications required:
   a. Education
   b. Previous training and experience
   c. Type of equipment used
   d. Physical requirements
   e. Working conditions
   f. Supervision given
   g. Supervision of others
   h. Contact with others
   i. Amount of responsibility for safeguarding confidential information
3. Review the present testing procedure from the standpoint of developing methods of selecting personnel for production line operation as distinguished from those jobs requiring a greater degree of judgment.
4. Select and give aptitude tests pertaining to the job.
5. Hold interest and motivation conferences with employees to determine their job interest.
6. Give a temperament analysis.
7. Hold conference with department head summarizing findings of each employee appraisal, and with him plan a definite transfer or promotional program for each employee with respect to retainment or displacement, transfer, or future promotion to better jobs.

It makes sense to divide office operations into two areas—the relatively small area of complex operations requiring judgment and decision, the larger area of simple, repetitive operations requiring little judgment or initiative. Only the first demands high quality workers with imagination and a high degree of general intelligence; the other not only does not demand such workers; they can be a handicap.

Obviously, high-quality workers are apt to be expensive, even when placed in the duller jobs. They create more of a turnover problem, because they are not happy in the undemanding jobs; they are ambitious, they want something better. Advancement in their own office can meet this need, of course, but if their own office doesn't have any openings, they will, with perfect justice to themselves, move to the first one that does. So, not only will they—because the office has made a fetish of getting the most highly qualified person for every job opening—cost more in salary throughout their stay, but they will cost more in terms of clerical man hours needed as a cushion for absenteeism, and clerical turnover.

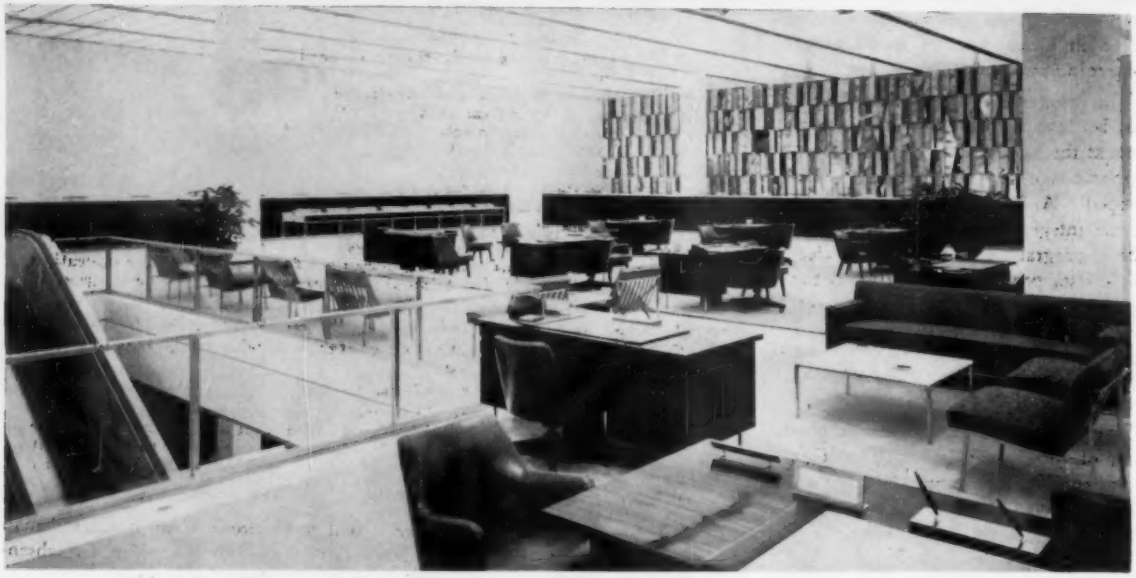
Objections to rotation

Job enlargement, or rotation will make it a little easier to hold a generally high level staff, since no one of them will get quite as bored over quite such a long period of time as he would if placed in a low level job on a permanent basis. But it's not really a very sensible solution from an economic viewpoint. Under this policy every single applicant must be of a fairly high order, or he will fail badly when it is his turn to carry a fairly complex responsibility. So the high-salary problem is not solved. Moreover, the simple loss of time involved in changing from one job to another, either several times a day in a job enlargement program, or periodically in a job rotation program, represents a financial loss, and, to some degree, a loss of clerical skill momentum on the workers' part.

The answer is a policy of personnel selection which does not demand the very best all-around applicant of all those who appear for a given job but

(*To page* 68)

Main floor handles the large volume of everyday, individual banking transactions . . .



. . . while Main Banking Room on second floor serves commercial accounts

The bank with glass walls

Banking loses its "secrets" in this "showcase" building, where the vault's in plain view from the sidewalk, and tellers work behind open counters—

Glass walls are hung from steel frame, do not support weight

THE GOAL of the Manufacturers Trust Company, when it planned its new bank on Fifth Avenue and 43rd Street in New York City was to "create a structure unlike any other financial institution in this country or abroad"; few New Yorkers who have paused to watch all of a bank's activities being carried on inside the branch's plate glass walls would argue that the objective hasn't been met.

But the bank is notable for more than its total reversal of orthodox financial architecture. Why only a five story building on one of the most expensive corners in New York? The bank's explanation is that a skyscraper was voted down because it wanted primarily to have a building devoted to banking at that location, rather than an office building which incidentally housed a bank. A skyscraper would have involved the bank in tenant services, and would have cut down on the ground floor area available for the bank's uses because of the need for a large bank of elevators, lobby space, and an off-street loading platform.

Designed by Skidmore, Owings, & Merrill as a 'showcase for banking," the new building has no "secrets"—and it would be unfortunate if it did, since almost all of its activities are completely visible to every passer-by on one of the busiest corners in New York, as well as to office workers in skyscrapers surrounding and towering over the five story structure of glass.

Third floor bookkeeping department has machines, furniture, walls in harmonizing colors

Glass walls give natural light

Company president's office on fifth floor has clean, uncluttered look

Original oils on executive floor, pleasant, private interviewing offices for Personal Loans, a gay, sunlit employee lounge and lunch room are features of new bank

Should accountants plan industrial accounting?

Author gives an emphatic "No," in some instances. Industrial accounting should be designed to meet industrial needs, not accounting principles—

by Edmond W. McNamara
Office manager, The Bassick Co., Bridgeport, Conn.

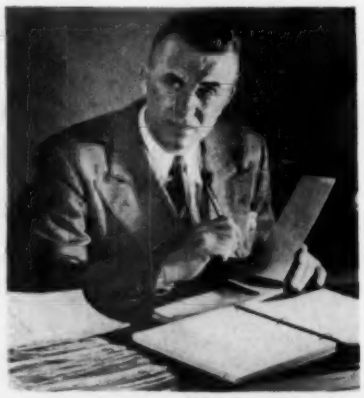
TOO FREQUENTLY the designing of accounting systems is left to accountants who because they are accountants are prone to think of an accounting system as an end in itself instead of a means to an end. Accountants think in terms of charts of accounts, journals, ledgers, accounting reports, statements and exhibits. They concern themselves with the physical and arithmetical phases of record keeping and reporting: the bookkeeping machines, the ledgers, the worksheet; the content, layout and format of the finished accounting report. To them prescribed presentation is of the essence. And it must be in technical accounting jargon. In doing this they fail to recognize an accounting system for what it really ought to be.

What then should an industrial accounting system be? If we avoid the accountants' vernacular and concept we might define it as a network of procedures designed to do two things in relation to our main purpose (which is to manufacture and/or distribute at a profit):

1. Accumulate, record and channel operational data and information up to management.

2. Summarize, interpret and reflect the results of operations, so as to have a guide for future operations.

In this sense it is—and should be—a means of two-way communication between the producers and their management.



Very frequently, the industrial accounting system should be designed by a systems man rather than an accountant.

What actually happens?

The accountant - designer of systems will issue glib instructions stipulating that the accounting statements must be ready by the tenth of the month, come hell or high water. And then each segment of accounting blames some other section when schedules are not met. Each becomes a proficient excuse maker. Each, according to his rank blames the fellow beneath him. Meanwhile management and the men on the production line continue to clamor for more analysis, more breakdown, more explanation of the accountant's figures.

All the while these recorders of historical data continue to devote their time and attention primarily to computing, extending, summarizing, averaging, allocating, verifying, checking and double-checking column upon column of figures. And they carry entirely too many of them out to five places after the decimal and create literally tons of workpapers that clutter up office files.

But what thought do they give to simplifying the work and providing the proper means for channelling the necessary information into their recording domain so that reports and statements can be available on schedule and will be of optimum usefulness to management in directing operations? How often do they consider the possibility that the fellow out in the plant, or in the timekeeping office, may be hard pressed to give them the many basic figures of information they demand? Being located close to and having the ear of management, most accounting departments take good care of themselves and think that all is well with the world. They grab a lion's share of the equipment appropriation. They compose the expense budgets and oftentimes fail to give realistic consideration to the needs of the fellows who are expected to furnish them the figures on which their whole domain thrives. They frown on any request for personnel outside the main office. No matter how reasonable their demands upon the operating departments may be, they will be unfair if the means of compliance are not provided.

Basic functions forgotten

One might think that the sole purpose of their existence was to satisfy management with reports designed to fit the accounting structure. And in some companies where the accounting influence is disproportionate, this is what happens. Sight is lost of the fact that the factory is the bread and butter department, without which there would be no need for accounting. In these circumstances the accounting system is not attuned to the needs of the factory.

The suggestion that the accountant ought to spend more time in the plant evokes a rebellious, "absurd!" Preoccupation with crossfooting and checking and verifying historical figures precludes such basic adventures.

What then is the answer? The answer is (and this may well be a minority opinion) that in many instances an industrial accounting system ought to be designed by a systems man in preference to the accountant. And he should lay the groundwork for his system at the production site. First he should find out what record the foreman needs to carry out his function of manufacturing the product and to keep his immediate superiors informed of his production progress. He should decide which information is to be kept available in the department and which is to be communicated up the line of command. Then he should provide him with the necessary means: space,

(*To page* 76)

Scene at last year's Chicago Business Show

Chicago seminar goes "atomic"

Thirteenth annual seminar and business show will open February 28. Business show will run through March 3—

JOHN W. EVERS, President of the Commonwealth Edison Co., and the Chicago Association of Commerce and Industry, discussing "Top Management Challenges Office Management," will be the keynote speaker at the February 28 opening luncheon meeting of the 13th Annual Seminar and Business Show of the Office Management Association of Chicago.

The Seminar, which is held in conjunction with Northwestern University, will run from the last day of February through March 2, with the business show running concurrently. Both seminar and show will be held in Chicago's Conrad Hilton Hotel.

Theme of the seminar this year is A-T-O-M, "Alerting Today's Office Managers." In an acrostic on the theme letters, seminar sessions will be devoted to four main fields:

Automation
Techniques
Organization
Management

The first speaker of the Monday afternoon session will discuss the other side of the keynoter's theme. Robert A. Ferguson, president, Rust-Oleum Corp. of Chicago, will take as his subject, "What An Office Manager Must Have to Boost Himself Into Top Management."

On Tuesday morning, March 1, Joseph S. Glickauf, Jr., a partner of Arthur Andersen & Co., will speak on "Electric Accounting—What It Is, Its Effect on Personnel, Procedures, Costs, and Reports." The Tuesday afternoon session will be divided into two parts with the first speaker, Ben S. Graham, director of methods research for the Standard Register Co., talking on the subject, "Through Surveys and Other Techniques, How to Find Out What Problems Need Attention." The second speaker of the afternoon, Thomas H. Healy, Consultant, Management Controls Department, Peat, Marwick,

(*To page* 78)

Conference subjects will be devoted to four main themes:

A—Automation
T—Techniques
O—Organization
M—Management

Seminar and show this year have two "Queens." At left, "Miss Business Show," Mrs. Lorraine Elliott. At right, "Miss Seminar," Miss Roberta Buffet

Follow that sales order!

—to learn what's going on in every department of your company. Weak spots will show up quickly—

by Martin Smith,
Assistant to the President, Nathan Straus-Duparquet, Inc., New York

Martin Smith

The author here draws on personal experience from his post as a top executive in one of the nation's leading firms supplying equipment and furnishings for hotels and restaurants to describe a simple way of analyzing and streamlining office operations.

IN FOLLOWING the flow of the sales order from the point of origin to the final delivery, it is possible to learn the operation of every department in a company. For by knowing the operation of every department and by learning the relationship of each department to the other, it is then possible to analyze the procedures of all departments. Recommendations can then be made that should affect the operations of every department and the operating profit of the whole company.

The processing of the sales order embraces the work of all departments and all the forms and reports used by those departments. It means that your efforts will bring you to the credit department, to the buying and merchandising offices, to the stock room and warehouse, to drafting and engineering and manufacturing, and then to shipping and receiving, accounting and statistics.

You start with the salesman—how does he fill out the sales order form? Everything that the salesman tells you is written down as he talks. Everything that is not understood is questioned. While discussing how he makes out his order, you can ask him to describe a typical day—where he goes and what his sales technique is.

You can learn the forms he makes up and the forms made up by his department. Salesmen love to talk. All you have to do is listen and write and ask questions and collect forms.

What happens to order?

From the salesman you follow the sales order to the sales office—what is done with the order and what statistics are recorded? You learn how sales quotas are utilized, what the work of the clerical staff is, and how salesmen are paid and rated. From the sales office you go to the registration numbering clerk and you learn how numbers are given to the sales orders, how the index cards are used and how they are filed. From here to the credit department to learn the procedure in granting credit and under what circumstances credit is refused. How are the sales orders signed—by signature, by initial, and how long does each sales order remain in this department? You listen, you write, you question, you collect forms.

Next to the merchandising department and perhaps you discover that each merchandise department handles its sales orders differently—why is this so and what useful purpose is served? You learn how the inventory cards are handled and how purchase orders are made up. How is follow-up made on purchase orders and what is the percentage of customer complaints on delays? (You will find that the customer complaints are never the fault of the merchandise department — when you are in that department—and never the fault of the shipping department when you are in that department.) You go to the stock room to find out how merchandise is selected and how received and what bin system is utilized; to packing and to shipping and receiving, learning the delivery receipt procedure, and how and by whom bills of lading are made up, and what shipping and receiving records are utilized.

It is an absolute necessity to follow through on the distribution of the copies of every form that is made up in conjunction with the sales order—for example, the purchase order and the invoice. In following the distribution of the copies of the purchase order, you will learn the work of Accounts Payable; in following invoice copies, you will learn the billing methods and the procedure used in Accounts Receivable. Then it is just a step to the general ledger and the whole accounting system.

While interviewing, it is absolutely necessary to put the employees at their ease. They are afraid of you. They think their jobs are in jeopardy. Suit your approach to each employee's personality—not to your own. Don't be officious—be warm and human and understanding. And ask questions.

Analyzing work flow

After all the departments have been reported on (and sometimes it is necessary to interview more than one employee in a department; try to speak to that person who does the detail), it is necessary to review your notes and describe the flow of the work in logical and understandable form. You will find notes that you do not understand as you read them. Go back to the department and find out what you need to know. You will generally find that the employee will tell you something he forgot also. Make sure of your facts. After your sales order work flow has been written and typed, go back to each department and read that part of your work flow that applies to the particular department and ask for corrections.

Then you go back to your desk and sit down and study the work flow as written. You analyze—what is being done twice? Why is it necessary to type one item on a page? Why are so many people needed in this department? What is now being done that can be simplified? Why are intermediate forms utilized in the inventory section? What is being done by one department that is a function of another? Is so much accounting detail necessary? What reports are used by management and what reports are not being used?

A sales order analysis such as above was made of our Chicago company. The results were astounding. We learned why our Chicago company was overstaffed, what procedures it was necessary to change, and what management policies should be stressed. The departmental analyses resulted in the following observations:

1. In writing descriptions of the detailed procedure of the work of the accounts receivable department, it was discovered that there were ten classifications of receivables. In discussing this with management, it was learned that they were not interested in such a fine breakdown. Dividing the accounts into merely two classifications reduced the time necessary to handle the accounts receivable ledger cards and reduced the time of the general ledger clerk in posting. It was discovered that this department utilized a procedure for the posting of cash receipts that was lengthy, archaic, and resulted in double handling of the ledger cards. The cash receipts procedure was changed to a simple, streamlined system that left the employees free for other work.

2. The procedure in the accounts payable department necessitated the listing of payable invoices at least twice, and in some cases, three times. An accounting machine was bought that reduced the posting to one.

3. It was discovered that one of the reasons the billing department was behind in its work was that there was a labor turnover in this department due to a personality situation, which was satisfactorily cleared up.

4. The stenographic department was overburdened with work because executives' secretaries could not take dictation. This was changed by hiring stenos instead of mere clerks.

5. In one of the merchandise departments, it was learned that an inventory system was being utilized that necessitated posting to an intermediate form and then to inventory cards. In addition, the inventory cards themselves were in heavy ledgers and the items posted were in too great detail. The inventory sections of all the merchandise departments were centralized and placed on an electrified revolving file.

6. The purchase orders that were formerly written by each merchandise department were also centralized and the checking of the vendors' invoices to the purchase order copy was given to the accounts payable department for the purposes of both internal control and to eliminate these employees who had few or no duties.

7. The work flow of the sales order necessitated its going through a coordinating department twice and sometimes three or four times before the order was filled. Although the function of this department was presumed to be expediting, it worked to the contrary because it was a bottleneck. This department was eliminated, which not only speeded up the sales order but also cut down on excess overhead.

8. Incentives were practically nonexistent. Budgets were not used and sales were not forecast. There was no sales training program and new salesmen were left to shift for themselves.

(*To page 76*)

Production orders are duplicated at typical photocopy unit

Photocopying speeds production control

North American Aviation shifts responsibility for change notification to "upstream" departments

by Helen R. Wilson
Management Consultant, Los Angeles

Hourly pick-up service speeds routing of order forms

BASICALLY, production control is an industrial rather than an office problem, but the chain of information—the flow of data—on which effective production control rests is just as basically a clerical function within the factory environment. When a variety of particularly complex products are being manufactured, accuracy and precision in the clerical function are vital. And when an effective system is worked out on the production line to handle a clerical problem, its benefits can be transferred almost intact to the office for use in speeding the flow of work there.

In the production of today's complex aircraft literally thousands of component parts go into manufacture. The production control of these manufacturing processes is complex and the paperwork behind the flow of material is usually of tremendous proportions. Management must constantly ask: "How can a system of shop production control be simplified and made more effective?"

North American Aviation has found one answer to this problem, has insti-

tuted a "New Look" scheduling program which has effectively decentralized production control to fix responsibility in the individual department. The result: a smooth functioning flow of production with a minimum amount of lost production time from design of a jet fighter to test flight.

Heart of the system is a carefully controlled schedule and an almost foolproof method of conveying data on production status from department to department. Failure on the part of anyone in the organization to recognize the all-important schedule blocks the rapid flow of parts through their various manufacturing cycles.

Rapid duplication needed

One of the objectives of this new system has been to reduce the amount of effort necessary to convey accurate status and schedule information from fabricating, or making departments, to assembly, or using departments. It became apparent early in the planning stages of this "new look" that a rapid method of duplicating or copying shop orders was needed in order to make an effective notification system possible without employing additional workers.

The old system depended on shop "follow-up personnel" who generally transmitted information between manufacturing departments by verbal contacts and manual copying. It had been in use throughout the production days of World War II; experience gained in those years had shown the need for an improved control system.

Now in operation a full year, production has not missed a schedule under the new system—"an all time low on burden." It has transferred the previous follow-up procedure to a "push" method instead of a "pull" method. The responsibility for notification on such things as production delays, parts shortage and work order changes has been switched from departments *downstream* in the production flow to those *upstream*.

Now, instead of a department running back to an earlier manufacturing department on a particular assembly to inquire, "where are my parts?", the responsibility is fixed so that the department *upstream* must notify the next-in-line department *downstream* of any delays which have occurred up to that point and why.

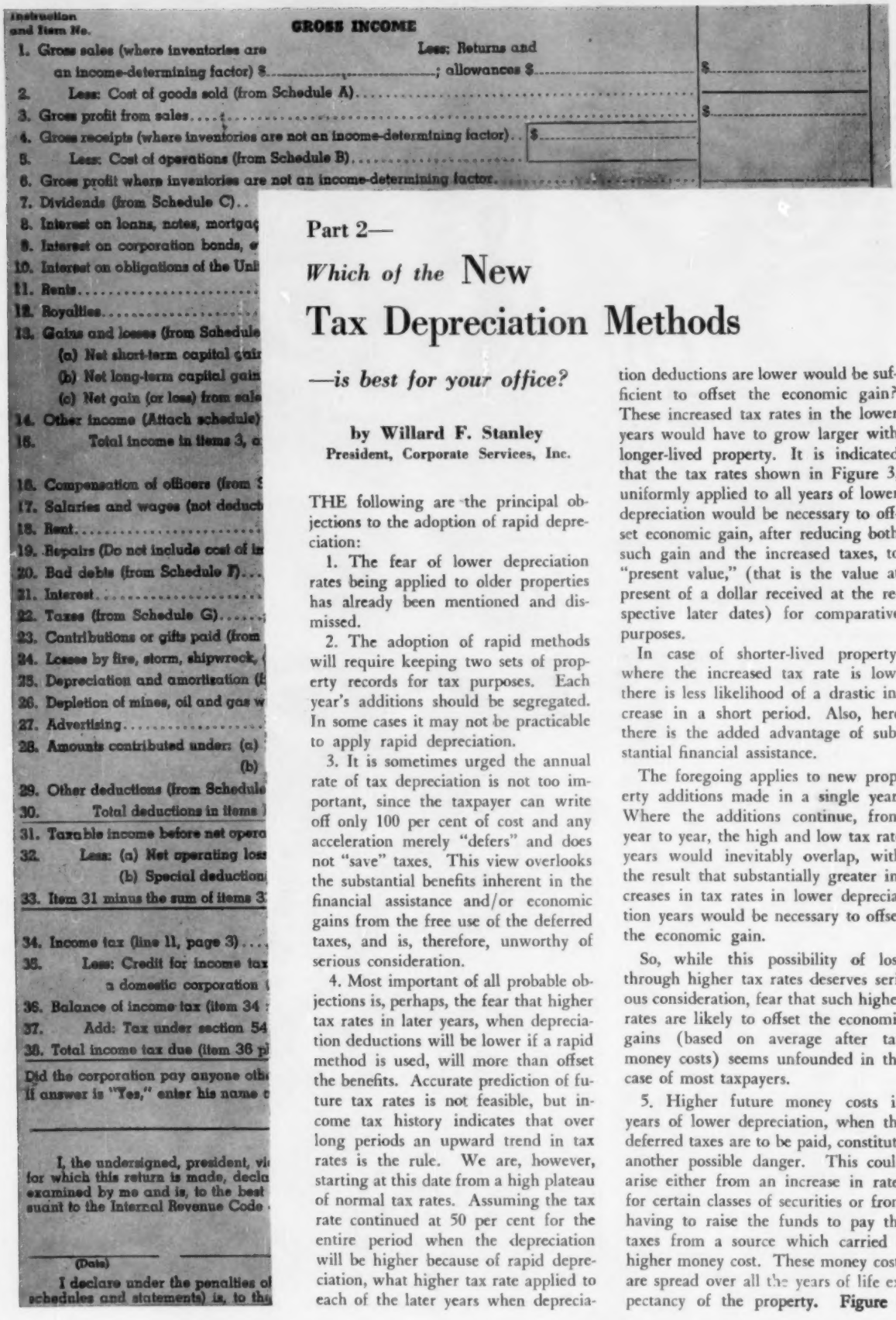
Key to this notification system in the North American manufacturing di-

(*To page* 77)

Photocopy units are scattered through plant and office

Schedule Control Center routes copies to proper destinations

Each card of production order set has its own color for easy recognition



Instruction and Item No.	GROSS INCOME		
1.	Gross sales (where inventories are an income-determining factor) $; Less: Returns and allowances $		$
2.	Less: Cost of goods sold (from Schedule A)		
3.	Gross profit from sales		$
4.	Gross receipts (where inventories are not an income-determining factor)	$	
5.	Less: Cost of operations (from Schedule B)		
6.	Gross profit where inventories are not an income-determining factor		
7.	Dividends (from Schedule C)		
8.	Interest on loans, notes, mortgag		
9.	Interest on corporation bonds, e		
10.	Interest on obligations of the Uni		
11.	Rents		
12.	Royalties		
13.	Gains and losses (from Schedule		
	(a) Net short-term capital gair		
	(b) Net long-term capital gain		
	(c) Net gain (or loss) from sale		
14.	Other income (Attach schedule)		
15.	Total income in items 3, a		
16.	Compensation of officers (from S		
17.	Salaries and wages (not deduct		
18.	Rent		
19.	Repairs (Do not include cost of in		
20.	Bad debts (from Schedule F)		
21.	Interest		
22.	Taxes (from Schedule G)		
23.	Contributions or gifts paid (from		
24.	Losses by fire, storm, shipwreck,		
25.	Depreciation and amortization (I		
26.	Depletion of mines, oil and gas w		
27.	Advertising		
28.	Amounts contributed under: (a)		
	(b)		
29.	Other deductions (from Schedule		
30.	Total deductions in items		
31.	Taxable income before net opera		
32.	Less: (a) Net operating loss		
	(b) Special deduction		
33.	Item 31 minus the sum of items 3		
34.	Income tax (line 11, page 3)		
35.	Less: Credit for income tax a domestic corporation		
36.	Balance of income tax (item 34		
37.	Add: Tax under section 54		
38.	Total income tax due (item 36 p		

Did the corporation pay anyone oth
If answer is "Yes," enter his name

I, the undersigned, president, vi
for which this return is made, decla
examined by me and is, to the best
suant to the Internal Revenue Code

(Date)

I declare under the penalties o
schedules and statements) is, to th

Part 2—

Which of the New

Tax Depreciation Methods

—is best for your office?

by Willard F. Stanley
President, Corporate Services, Inc.

THE following are the principal objections to the adoption of rapid depreciation:

1. The fear of lower depreciation rates being applied to older properties has already been mentioned and dismissed.

2. The adoption of rapid methods will require keeping two sets of property records for tax purposes. Each year's additions should be segregated. In some cases it may not be practicable to apply rapid depreciation.

3. It is sometimes urged the annual rate of tax depreciation is not too important, since the taxpayer can write off only 100 per cent of cost and any acceleration merely "defers" and does not "save" taxes. This view overlooks the substantial benefits inherent in the financial assistance and/or economic gains from the free use of the deferred taxes, and is, therefore, unworthy of serious consideration.

4. Most important of all probable objections is, perhaps, the fear that higher tax rates in later years, when depreciation deductions will be lower if a rapid method is used, will more than offset the benefits. Accurate prediction of future tax rates is not feasible, but income tax history indicates that over long periods an upward trend in tax rates is the rule. We are, however, starting at this date from a high plateau of normal tax rates. Assuming the tax rate continued at 50 per cent for the entire period when the depreciation will be higher because of rapid depreciation, what higher tax rate applied to each of the later years when depreciation deductions are lower would be sufficient to offset the economic gain? These increased tax rates in the lower years would have to grow larger with longer-lived property. It is indicated that the tax rates shown in Figure 3, uniformly applied to all years of lower depreciation would be necessary to offset economic gain, after reducing both such gain and the increased taxes, to "present value," (that is the value at present of a dollar received at the respective later dates) for comparative purposes.

In case of shorter-lived property, where the increased tax rate is low, there is less likelihood of a drastic increase in a short period. Also, here there is the added advantage of substantial financial assistance.

The foregoing applies to new property additions made in a single year. Where the additions continue, from year to year, the high and low tax rate years would inevitably overlap, with the result that substantially greater increases in tax rates in lower depreciation years would be necessary to offset the economic gain.

So, while this possibility of loss through higher tax rates deserves serious consideration, fear that such higher rates are likely to offset the economic gains (based on average after tax money costs) seems unfounded in the case of most taxpayers.

5. Higher future money costs in years of lower depreciation, when the deferred taxes are to be paid, constitute another possible danger. This could arise either from an increase in rates for certain classes of securities or from having to raise the funds to pay the taxes from a source which carried a higher money cost. These money costs are spread over all the years of life expectancy of the property. **Figure 4**

shows a few examples of increased cost of money which would be necessary to offset economic gain, if such increased costs were applied to all years of lower depreciation deductions.

Moderate expansion in early years might be followed by more rapid expansion, requiring sale of equity securities at higher money costs. Relatively continuous expansion would greatly minimize loss from high money costs by overlapping the periods. Like the bugaboo of higher future tax rates, fear of loss through higher money costs appears generally unwarranted.

Accounting treatment

Rapid depreciation differs drastically from accelerated amortization of emergency facilities. Rapid depreciation is designed to stimulate permanently business expansion and modernization, the "normal" rate of tax depreciation being intentionally accelerated without any anticipated diminishing of normal life expectancy of the new property or more rapid actual deterioration in early years. It affects all taxpayers building or buying new depreciable property and will involve tremendous and annually increasing amounts as expansion continues. On the other hand, accelerated amortization was a temporary expedient to meet a specific defense effort, applying to relatively few taxpayers, allowing a purely arbitrary rate of write-off which recognized unusually rapid deterioration (economical or physical) of the certified facilities constructed for the defense effort.

Under these circumstances accounting treatment employed to reflect accelerated amortization does not seem applicable to rapid depreciation. There seems to be no justification for deducting depreciation on the taxpayers' books at the rapid rate used for tax purposes, a practice followed by most industrial and commercial corporations with respect to accelerated amortization. Regulated utilities and railroads did not change their book depreciation because of accelerated amortization. Under orders of Federal and many state commissions, utilities "equalized" income by charging thereto a provision for future taxes in an amount equal to the tax reduction. This amount was credited to a reserve for future taxes or to restricted surplus not available for dividends.

Taxpayer corporations whose stock is listed or quoted in the security markets should consider most seriously the impact of the accounting treatment they adopt upon their earnings, dividends and the market value of their common stock. Where the life of the new property is long, or where the expansion is continuous, the aggregate tax reductions will be recurring. If a taxpayer (such as a utility) made the same amount of additions each year, with the same average life expectancy, net tax depreciation deductions under the "Digits Method" would *never* be less in any year than under the straight line method, and, if there were any increase in the amount of the additions, year over year, such aggregate annual rapid depreciation deductions would always be more than under straight line depreciation.

If depreciation on new property subject to rapid depreciation is deducted on the books at the rapid rate used for tax purposes, earnings will inevitably be reduced and market values adversely affected. Such adverse effect could be tremendous in scope and *more than outweigh the financial and economic advantages of rapid depreciation.* This is not an argument against adopting rapid depreciation, but an argument against this accounting treatment, which seems unwarranted unless there is reason to believe that the new property will actually deteriorate more rapidly than it did in the past.

The justification for a charge to income to "equalize" it by offsetting the year's tax reductions, depends somewhat upon the degree of "recurrence" of the annual tax reductions and its materiality in relation to total income. Such a provision may be desirable to prevent material distortion of annual income as compared with later years. But where the tax reduction is recurring or immaterial it seems preferable to let the tax reduction from rapid depreciation flow through to increase income and earned surplus.

Rapid depreciation—when?

It requires an unusual combination of circumstances to make rapid depreciation inadvisable. First, it must be assumed (1) the life of the new property is short—say five years—thus reducing economic gains, and (2) the ratio of new property to total assets is small—say five per cent—with the taxpayer having substantial excess cash working capital—thus eliminating need for financial assistance. But to suffer a net loss from adopting rapid depre-

(*To page* 72)

Figure 3

Using Whichever Rapid Method Produces Largest Economic Gain for Respective Life Expectancies of Property

(Economic Gain is computed on basis of average cost of money of 5% per annum, after taxes)

	YEARS OF LIFE EXPECTANCY OF PROPERTY			
	5	10	15	20
Assumed 50% tax rate*.....	50	50	50	50
Assumed increase in tax rate**....	9	18	32	46
Assumed increased tax rate** necessary to offset Economic Gain....	59	68	82	96

* Applicable to all years of higher depreciation deductions under rapid method.

** Applicable to all years of lower depreciation deductions under rapid method.

Figure 4

Using Rapid Method Producing Greatest Economic Gain for Respective Life Expectancy of Property

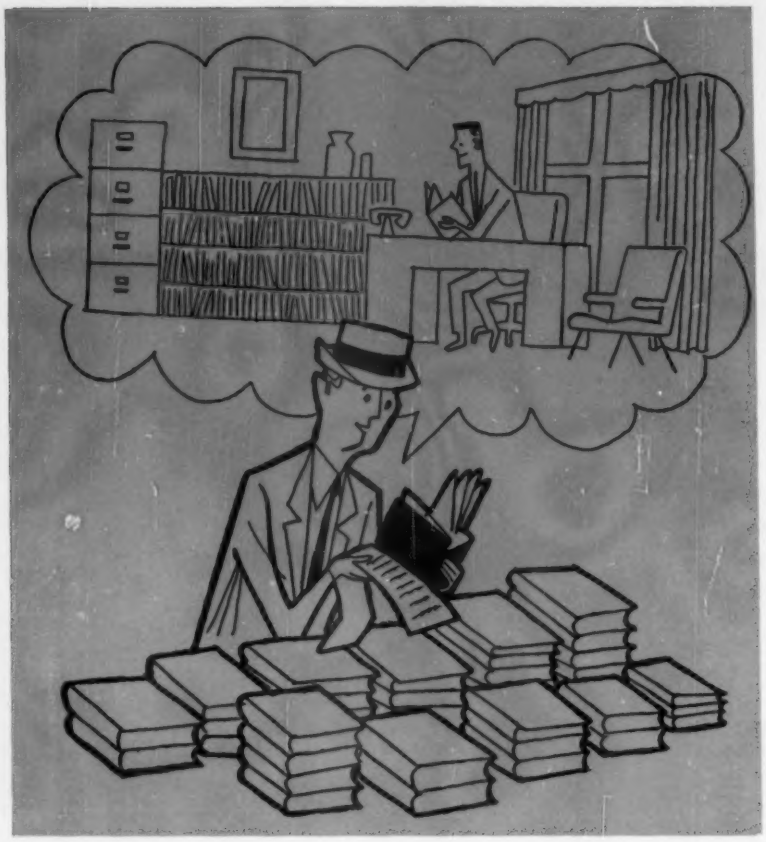
	YEARS OF LIFE EXPECTANCY					
	5		10		20	
Assumed after tax money costs*.....	2.0%‡	5.0%§	2.0%	5.0%	2.0%	5.0%
Assumed increase in money costs**.....	3.3%	7.0%	6.0%	13.0%	11.0%	28.0%
Assumed money cost as so increased**...	5.3%	12.0%	8.0%	18.0%	13.0%	33.0%

* Applicable to all years of higher depreciation deductions.

** Applicable to all years of lower depreciation deductions.

‡ Assumed minimum.

§ Assumed reasonable average.



Smaller offices which cannot afford a full-time librarian can still keep track of company-owned books and magazines if a few simple principles are applied . . .

Every office can have an effective library

by Arthur N. Bishop
Financial Analyst, Dresser Industries, Inc., Dallas, Texas

PROBABLY NO MORE vexed executive exists than he who knows where the solution to his business problem is to be found, but cannot locate the file. This is equally true when the clue lies in a misplaced book or magazine, and his assistants and clerks feel the wrath in comparable quantity. Suffice it to say that at least the latter pitfall can be avoided by the installation and maintenance of a company library system which will answer these questions: (1) do we have the book or magazine? (2) if so, where is it? and (3) a new edition has come out: should we buy it?

The natural first step in the installation of a company library procedure in any company is a physical inventory of existing materials. Herein lies the difference, for purposes of this discussion, between "larger" and "smaller" organizations. The former will employ a full-time librarian and operate a central company library much on the order of a public or collegiate library. The latter, conversely, will merely designate the library upkeep as a part-time function of a particular department, usually the Personnel or Industrial Relations Department. Customarily, the books and periodicals in the smaller organization will be scattered throughout the company, with little or no control. Many of them ultimately will find their way into private homes, either by design or by accident. It is to rectify such haphazardness that this article is dedicated.

A scratch pad may serve the purpose for the accession memorandum during the inventory, but a ready-made index card is much more practicable. Too, it furnishes a springboard for installation of an index system after the inventory has been completed.

There is no one ideal index card which will serve the needs of all types of libraries in all sizes and classes of business entities. However, by using a basic outline of information required and exercising a little ingenuity, the library system planner can emerge with an idea which should prove quite satisfactory to his company. Exhibit A, designed for a 3" x 5" card and employing elite type, furnishes the information outline. With minor variations it can be used by most companies which, like most men, do not absolutely require a tailor-made suit. It can be used for the original inventory of books and thereafter ripen into the double utility of being converted into an index of whatever style is desired.

At the outset, the inventorying par-

ties should realize that the analysis should be thorough. A hit-or-miss system is little better than none at all. Accordingly, each book should be stamped on its inside front with a legend indicating company ownership, and the accession number should be inserted plainly and indelibly. As an additional safeguard, this process should be repeated on the title page of the book. The accession number is merely a serial number assigned, and, when inventorying an already existent stock of books, one place is about as good to start as another.

The remainder of the card is, for the most part, self-explanatory. The top line (Index) is left blank during the inventory. Following the accession number—and cards may be prenumbered for the inventory— the author's name should be inserted, with last name first. The exact title of the book should be placed on the line below. Category and code number are next. The former is the broad, general character of the book, such as mechanical engineering, industrial management, property insurance, and the like. These categories, of course, should be tailored to the company's needs: one having a heavy concentration of mechanical engineering books, for example, might prefer to separate this category into machine design, thermodynamics, etc. The code number is a company-designated category-numbering plan, about which more will be said later.

An examination of the face and reverse side of the book's title page will reveal the publisher's name, copyright date, and edition. For inventory purposes, the price and name or title of person or department for whom the book was requisitioned may be more obscure. This may necessitate an excursion through purchase order files or petty cash records. If it cannot be found, the Publishers' Trade List Annual at the public library will give the price if the book is still in print, and the present departmental location can be substituted for the original requisitioning party. The remainder of the card should be self-explanatory, since it consists of routine as to the vendor's name, purchase order number (if any), number of voucher issued in payment, and date of receipt of the book.

Inventory of periodicals

Although a physical inventory of periodicals may proceed with greater rapidity than one of books, it should not be conducted with any lesser degree of thoroughness. Exhibit B, evolved for a 3" x 5" card, spaced for elite type, is a fairly serviceable style of card which would meet the needs of most organizations. It is designed to do double duty, too, serving both as inventory record and permanent index. In addition, it will verify receipt of all issues in the subscription, if it is properly maintained.

In filling out the card, the exact title of the periodical should be inserted on the "name" line. The "Issued" space should be completed with the periodicity, as annually, semiannually, quarterly, bimonthly, etc. The name of the department where the magazine file is maintained should be inserted in its appropriate place. The next line contains the subscription data: the cost, period of subscription (e.g., $5 for 3 years, etc.), and the expiration date. The following line consists of order data — self-explanatory purchase order number and number of voucher issued in payment for the subscription—and code number, if the company wishes to categorize the magazines by types. The "Distribution" line specifies the routing of the magazine when received, as (1) President, (2) General Manager, (3) Superintendent, and so on. Below this is provided space to check off receipt of periodicals for a three-year period. The last two digits of the year may be inserted in the block alongside the names of the months, if so desired.

Indexing and control

When the inventory of existing materials has been finished, there still remains the Hydra of indexing and control. The periodical index is the easiest part, for all that is needed here is to arrange the cards in alphabetical order, by name of magazine. Code numbers may be assigned (as 100 for engineering periodicals, 200 for economics magazines, 300 for management journals,

(*To page* 74)

INDEX _____

ACCESSION NUMBER _____ AUTHOR _____

TITLE _____

CATEGORY _____ CODE NO. _____

PUBLISHER _____ COPYRIGHT DATE _____ EDITION _____

PRICE $ _____ REQUISITIONED FOR _____

PURCHASED FROM _____

PURCHASE ORDER NO. _____ VOUCHER NUMBER _____ DATE RECEIVED _____

Exhibit A. Index card for company-owned books

NAME OF PERIODICAL _____

ISSUED _____ DEPARTMENT WHERE FILED _____

SUBSCRIPTION: RATE $ _____ PER _____ EXPIRES _____

PURCHASE ORDER NO. _____ VOUCHER NUMBER _____ CODE NO. _____

DISTRIBUTION _____

RECEIPT

JAN	JUL	JAN	JUL	JAN	JUL
FEB	AUG	FEB	AUG	FEB	AUG
MAR	SEP	MAR	SEP	MAR	SEP
APR	OCT	APR	OCT	APR	OCT
MAY	NOV	MAY	NOV	MAY	NOV
JUN	DEC	JUN	DEC	JUN	DEC

Exhibit B. Magazine card serves as inventory record, index card

W. P. Westfall, IBM, (left), signals Dale Cochran (seated), of General Electric, to start electronic data transceiver, inaugurating hookup between G.E. computer bureau in Ohio and IBM's technical computing bureau in New York, while Dr. H. J. Grosch of General Electric watches.

Two concerns add interstate processing; AMA plans electronics meeting this month as first of series

by Robert M. Smith

SYLVANIA ELECTRIC Products Inc. late last month announced plans for the installation of a company-wide data processing center at a site as yet unselected. Heart of the system of mechanization to be used at the new center will be a "Univac" electronic computing system, which Sylvania will lease from the manufacturer, Remington Rand Inc.

Sylvania's president, H. Ward Zimmer, said mechanization and centralization of data processing functions in one large center has become imperative because of the company's wide dispersal of manufacturing plants, and production in diversified manufacturing fields. Sylvania has nine operating divisions, and maintains 45 plants and 12 laboratories in eleven states.

All company installations, after completion of the data processing center, will feed financial and production information over an electronic communications network to the center, where it will be processed and summarized for corporate and decentralized management.

Competitive conditions, as well as company growth, made Sylvania decide to establish the center, Mr. Zimmer said. "The problem of compiling, transmitting, and processing operating data has been increasingly difficult and costly," he went on. "Today, when there is less and less time between events, and when management must base its decisions on these events, it is essential that all levels of management have complete and significant information as soon as possible."

His company also expects to save "a large sum" in direct costs through more efficient processing, in addition to its primary objective of making all operating information available much more rapidly than it has been in the past.

Heart of Sylvania Electric Company's new interstate data processing system will be a "Univac" computer, here being demonstrated by Al. N. Seares, Remington Rand vice president (at control panel) to Leon C. Guest, Sylvania controller. Site for Sylvania processing center has not yet been selected.

He added that the new system also "should result in profit improvement in all products" since it will provide a relatively economical means for obtaining extensive additional information on all phases of the company's operations and competitive markets. Accumulating such information by conventional means would be excessively expensive.

The company plans to begin construction of the new center about the beginning of May, and hopes to have the center in partial operation by the beginning of next year. When in full operation, the center will handle all Sylvania record processing and keeping. It will be staffed by approximately 300 people.

The center will be linked with six area reporting offices by a leased wire network.

General Electric recently inaugurated a four-way hookup between plants in Ohio, Massachusetts, and upstate New York, with electronic computers in Ohio and New York City, for direct processing of engineering and research problems.

Indicates future

"This system provides an exciting foretaste of what can be expected in the field of data processing between remote points," Dr. H. R. J. Grosch, Manager of Investigations, Aircraft Gas Turbine Development Department, General Electric, said when the installation was completed. "Although we are concerned primarily in this set-up with processing of design and engineering problems, it takes little imagination to envision a similar network tying in many plants and branch offices for the central handling of standard accounting and record-keeping procedures."

The Aircraft Gas Turbine Development Department of General Electric, located at Evendale, Ohio, is the location of one of the IBM 701 computers being used by the company in the four-way hookup. The second computer is located at IBM's Technical Computing Bureau in New York City, where General Electric is renting use of the machine for eight hours a day. The 701 at Evendale is running for a full three shifts.

Plants tied in with the two computers, beside the Evendale plant, are the GE Medium Steam Turbine, Generator and Gear Department at Lynn, Massachusetts, and the large Steam Turbine-Generator Department at Schenectady, N. Y.

The link between the computing centers in the system and the plants is provided by IBM's new Electronic Data Transceiver, a device which dup-

(*To page* 42)

Incoming 'phone query is routed to . . .

Felix J. Pinto, agency manager, who holds call while . . .

CASE OF THE MONTH

Intercom installation increases insurance agency efficiency by 50-60 per cent

. . . using intercom to check query with claims department

INTRICATE AS insurance agency operations sometimes are, the Cardinal Insurance Agency, Inc., of New York, has found a way to answer all client questions on one 'phone call, with no necessity for calling back. It has, by the same innovation, cut down on the number of office conferences, made it possible for an executive to receive confidential information about a client's policy or claim—even while the client is seated across the desk—and has, as an added attraction, lowered the office noise level.

These results were obtained by installation of an RCA Modernphone intercom system, which, according to Felix J. Pinto, executive vice-president and manager of the agency has increased office efficiency by 50 to 60 per cent since its inauguration.

Only nine units were required for a complete office-honeycombing system which provides immediate and private communications among all essential departments, he said. By linking executive offices, switchboard, and the statistical, claims, and accounting departments, the intercom system has decreased "desk absenteeism" to a negligible minimum, speeded the flow of information, and added to the dignity and decorum of office operations.

The Cardinal Agency handles all types of casualty and liability insurance. Like every general agency, much of its success and efficiency hinges on its ability to provide quick and accurate information on claims, policies, and coverage.

Heretofore, a client phoning in for information was asked to await a return call while the office gathered the answers. This gathering required time-consuming visits to various departments, and possible conferences with various executives.

Today, in a matter of minutes, while holding the inquiring client on the outside telephone, Mr. Pinto, if his office has received the call, can obtain the answers by direct intercom connection with the various departments involved.

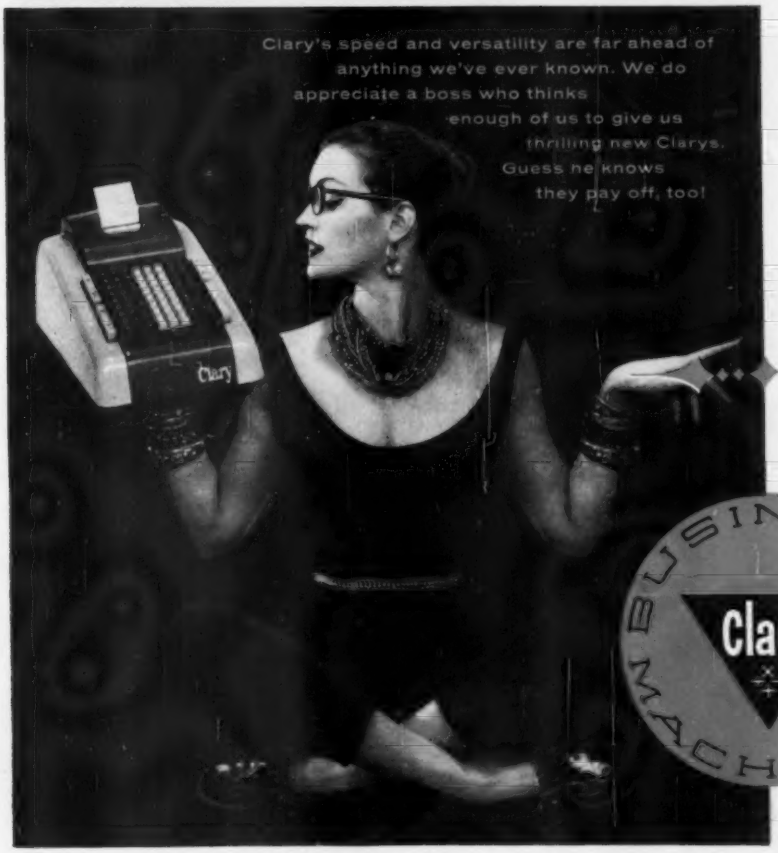
He can contact the departments individually or simultaneously by merely pressing the appropriate signal buttons on his desk unit.

"The primary advantage of the system in such application is that the required information is gathered quickly, without confusion, and without two or three people having to leave their desks to make a combined report in somebody's office," he said.

Each RCA Modernphone unit, compact and unobtrusive, has somewhat the size and shape of a standard desk telephone, including a hand-type receiver which combines both speaking and listening devices. Mounted on top of the unit is a panel of signal buttons which

(*To page* 79)

What a thrill the new Clarys bring an office! Modern new equipment like Clary is the nicest kind of compliment to pay a business girl. Keeps our morale 'way up... our work output, too!
Clary


Clary's speed and versatility are far ahead of anything we've ever known. We do appreciate a boss who thinks enough of us to give us thrilling new Clarys. Guess he knows they pay off, too!
Clary

10 KEY OR FULL KEY

Now Clary offers you both Adding Machine Keyboards!

Take your choice—they're both handsome, both quiet, with the lightest touch imaginable.

They add, subtract and multiply as fast as your fingers can fly—the Clary never holds you back. All the controls are power driven...and you'll enjoy the miracle of easy division without the use of tedious reciprocal tables.

Everything you've ever wished for is on the Clary!

*

Clary factory branch offices and dealers are listed in the yellow pages of hundreds of phone books from Coast to Coast. Have your boss call for a Clary demonstration in your office...soon!

FOR YOU!
Free new book, "How to Live Better On What You Make." Just tell us your name and office address.

BUSINESS MACHINES
Clary

Write Dept. M2,
Clary Multiplier Corporation, San Gabriel, California

CREATOR OF MODERN COMPUTING MACHINES AND CASH REGISTERS FOR AMERICA AND THE WORLD

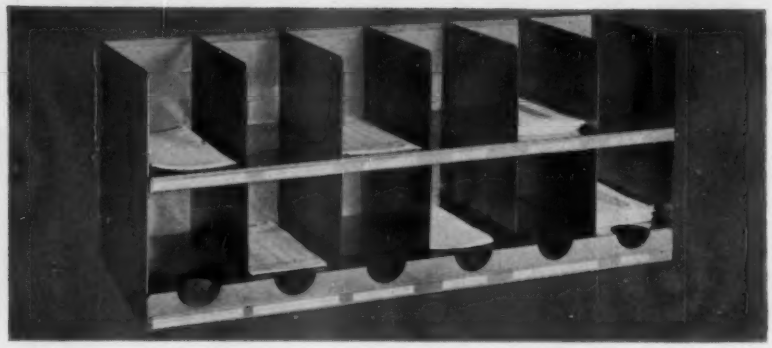
New for the office

◀ Typewriter table
The Regency table, made by Modern Steelcraft, 230 Fifth Ave., New York, has storage pockets for stationery on the inside of each panel, plus center drawer. Drop leaves have snap-lock brackets. Made of steel.

◀ Visual control board
The Plan-O-Matic board is made by Lansdale Products Corp., Lansdale, Pa. It has revolving disks sliding on rails. Disks, in ten color combinations, have numerals from 0 to 9. Index units are made for titling.

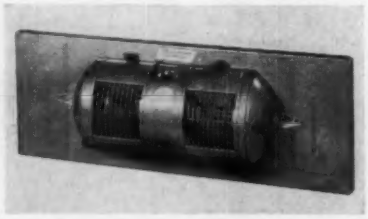
◀ Appointment book
The Daily Reminder, like the Defiance line of desk calendars, is designed as an aid to memory. The Reminder is available either bound or loose leaf, plain or edged in gold, and differing models have various record-keeping sections. The calendars are offered in several models. The manufacturer is the Wilson Jones Co., 209 S. Jefferson St., Chicago.

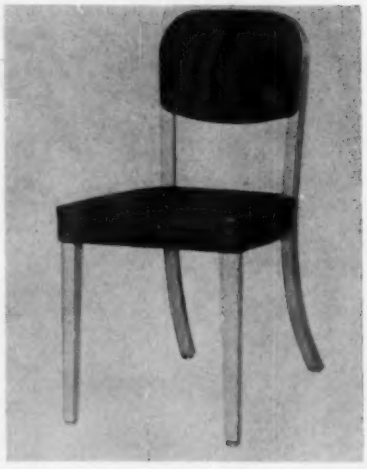
◀ End table
This new table is available in either genuine walnut or genuine oak, and is designed to harmonize with contemporary office furniture. Other end tables and accessory wood items are also offered. The table is made by the Nu-Craft Furniture Co., 1615 Eastern Ave., S.E., Grand Rapids, Mich.



▲ Sorting rack
Called Sort-O-Matic, this rack is offered by Nu-Craft Products Co., 321-327 Clarkson Ave., Brooklyn, N. Y. It has 12 compartments, 4 rubber feet.

▼ Room ventilator
The Air-O-Rator provides air intake, exhaust, or both at once, filtering the air in the process. It is made by Goodwill Mfg. Co., 1213 S. Laramie, Chicago.





▲ "Wall-saver" chair
The legs of this chair project backwards to prevent the chair from striking the wall. Chair has foam rubber seat, contoured pan. It is made by Art Metal Construction Co., Jamestown, N. Y.

try duplicating this...

now you can **RENT**
the world's foremost
duplicating system
for as low as
$7.50 a month

For just pennies a day, you can install a complete, modern OLD TOWN Spirit Duplicating System in your office. You can rent one, a dozen or more of these precision-engineered Spirit Duplicators with *no capital investment* necessary.

Even before you rent, you can have a *10-Day Free Trial* . . . to prove for yourself how the versatile OLD TOWN Duplicator cuts paper work and saves both time and money. You'll find hundreds of applications — from sales letters, bulletins and reports to simplified billing and control systems — make all the copies you need of everything you can type, write or draw in 1 to 6 colors.

Your old machine? Trade it in. That antiquated "smudge pot" is still worth money. Trade it in on the new OLD TOWN Duplicator.

Get all the facts on OLD TOWN'S remarkable rental plan. Mail the coupon NOW!

World's foremost maker of carbons, ribbons, duplicators and supplies

Old Town CORPORATION

Old Town Corporation, Dept. OM-2 345 Madison Avenue, New York 17, N. Y.

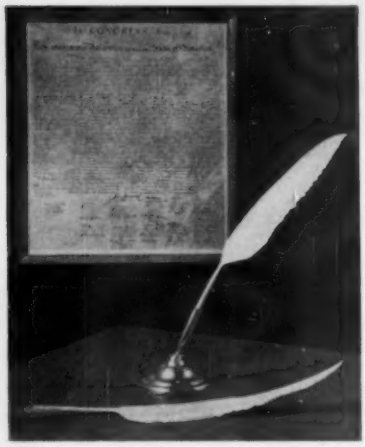
Please send me complete information on the OLD TOWN Inkless Duplicator, including 10-day free trial, rental and trade-in.
Present duplicator: .....

☐ You may arrange a FREE Trial

Company Name .....
Attention .....
Address .....
City ..... Zone ..... State .....

◗ Silver quill pen holder
This quill pen, in its sterling silver holder, represents a revival of an old tradition. The Supreme Court of the United States uses quills of this make. They are from prize white Embden geese; the nibs are cut by hand. The silver holder is designed in Colonial style. Both are the work of Lewis Glaser, Box 123, New Haven, Conn. Holder and two quills, gift-boxed, $10, tax included. In brass, $2.50.

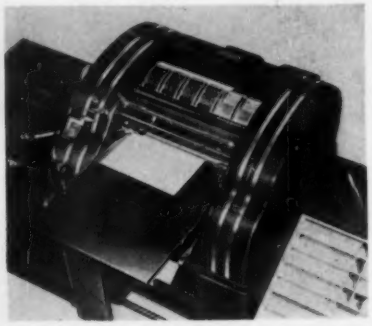
◖ Machine stand
The No. 400 Vanpe Type and Add Stand, made by Vanpe, Inc., 4613 S. State St., Chicago, features a non-skid rubber mat, rounded corners, heavy-duty drop leaf arm supports, recessing of legs, and large, brake wheel casters.



◖ Photo panel
Acme Photo Panels are designed to make it easy to prepare lists for reproduction by photographic processes. They are made, in various sizes, by Acme Visible Records, Inc., Crozet, Va.

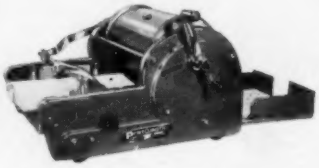
▲ Ten-key adding machine
This electric adding machine has "mathematical automation," designed to simplify division and multiplication. The manufacturer is Clary Multiplier Corp., San Gabriel, Calif.

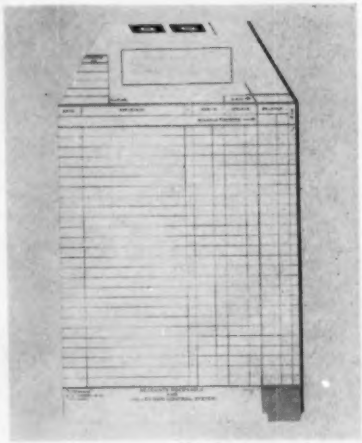
◖ Secretarial posture chair
This is one of four new chairs made by Royal Metal Mfg. Co., 175 N. Michigan Ave., Chicago. It has foam rubber seat and backrest, vinyl upholstery.



▲ Systems duplicator
This Ormig machine can eliminate or shift columns automatically and select data from a spirit master by columns in various combinations without masks or blockouts. It is sold by Copy-Craft, Inc., 105 Chambers St., New York.

▼ Folding machine
The Fold-O-Matic is manually operated and has a fully automatic feed taking 1, 2, 3, or 4 sheets at a time. It is made by Print-O-Matic Co., Inc., Merchandise Mart, Chicago.





▲ Accounts receivable plan
Visirecord, Inc., Copiague, L. I., N. Y., makes accounts receivable ledger cards of the vertical visible type, designed to take a spirit type duplicating master in the form of a "patch" which can be used for addressing statements, etc.

Another reason why Hammermill Bond prints better, types better, looks better

ANY TIME you reorder white or one of the 12 Hammermill Bond colors, you get a match for the shade you first selected, maybe many months ago.

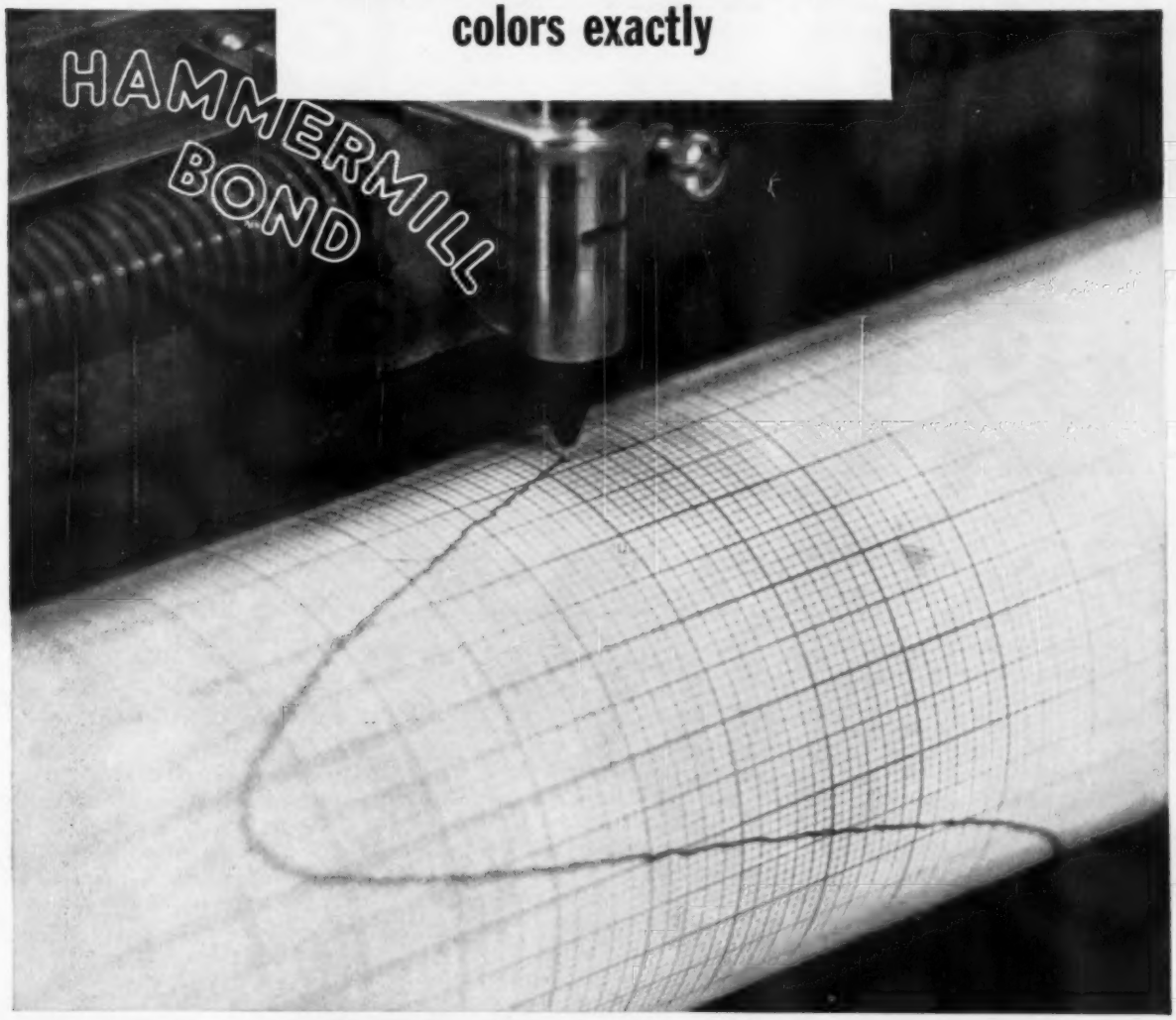
A sample of each new Hammermill color is put into a scientific instrument, the spectrophotometer. A beam of light, broken into a spectrum, sorts out the separate hues that combine to create the new color. Then both the wavelength and amount of each hue are recorded in black and white on a graph to provide a permanent record.

Fresh samples are graphed periodically on the spectrophotometer, each new graph checked against the original. Most mills must rely on paper samples, which fade in time. Hammermill records colors *permanently*.

We pioneered the use of this costly technique because it's the only way to be sure you get the shade of paper you expect, order after order. It's just one of the hundreds of quality controls that make Hammermill Bond (1) *print* better, (2) *type* better, (3) *look* better. You'll find office work goes more smoothly when you choose Hammermill Bond for your business printing.

You can obtain business printing on Hammermill papers wherever you see the Guild shield on a printer's window. Hammermill Paper Company, East Lake Road, Erie 6, Pa.

Rainbow in black and white helps Hammermill match colors exactly



...yet HAMMERMILL BOND costs no more

—and actually less than many other watermarked papers

Coming Events

American Management Association
February 14-16
Personnel Conference
Palmer House, Chicago

●

Louisiana State University
February 14-16
1955 Conference on High-Speed Computers
Louisiana State University
Baton Rouge

●

University of Wisconsin
Wisconsin Manufacturers Association
February 15
March 15
April 19
May 17
Conference for Office Managers
Wisconsin Tower Building
Milwaukee

●

Office Management Association of Chicago
Northwestern University
February 28-March 3
Thirteenth Annual Management Seminar and Business Show
Conrad Hilton Hotel, Chicago

●

Transcription Supervisors' Association of New York
March 14
Seventh Annual Little Business Show
Schrafft's Restaurant, 220 W. 57 St.
New York

●

National Microfilm Association
Fourth Annual Meeting
March 24-25
Sheraton Plaza Hotel, Boston

●

National Association of Cost Accountants
April 12-15
Eighth Annual Southern California Business Show
Biltmore Hotel, Los Angeles

●

Albany Chapter, National Association of Cost Accountants
April 20-22
Northeastern New York Business Show
27th Division Headquarters Armory
Albany, N. Y.

●

National Secretaries Week
April 24-30
Sponsored by National Secretaries' Council, 750 Graybar Bldg.
New York

●

American Management Association
May 4-6
Insurance Conference
Hotel Statler, New York

●

National Office Management Association
May 22-26
Thirty-Sixth International Conference and Annual Office Machinery and Equipment Exposition
Royal York Hotel and Mutual Arena
Toronto

●

American Management Association
May 23-25
General Management Conference
Roosevelt Hotel, New York

●

Systems and Procedures Association of America
October 10-12
Eighth Annual International Systems Meeting
Sheraton-Cadillac Hotel, Detroit

New office building rises in Newark

A modern office building with many new tenant conveniences will be opened in Newark, N. J., during the coming summer. It will be known as the Newark Center Building, and it is being erected on a site of more than two acres, located one block from the Pennsylvania Railroad - Hudson Tube Station and the Bus Terminal.

Among the features of the new structure will be a basement parking area containing 65,275 square feet of parking space on a single level. Vertical transportation will be furnished by two sets of high-speed escalators. Air conditioning facilities will be separately zoned, so that the entire building can be kept at an even temperature, even though the sun's heat may be stronger on one side than on the others.

Power and telephone connections will be spaced on eight-foot centers to facilitate installation of business machines, telephones, and other equipment, and to permit flexibility in office layouts.

Lighting will be of the recessed fluorescent type, designed to provide 40 foot candles at desk level throughout the building. Flexible acoustical ceilings of modular panel construction will be used, and in order to allow large, uninterrupted floor areas, structural columns will be spaced on 33½-foot centers.

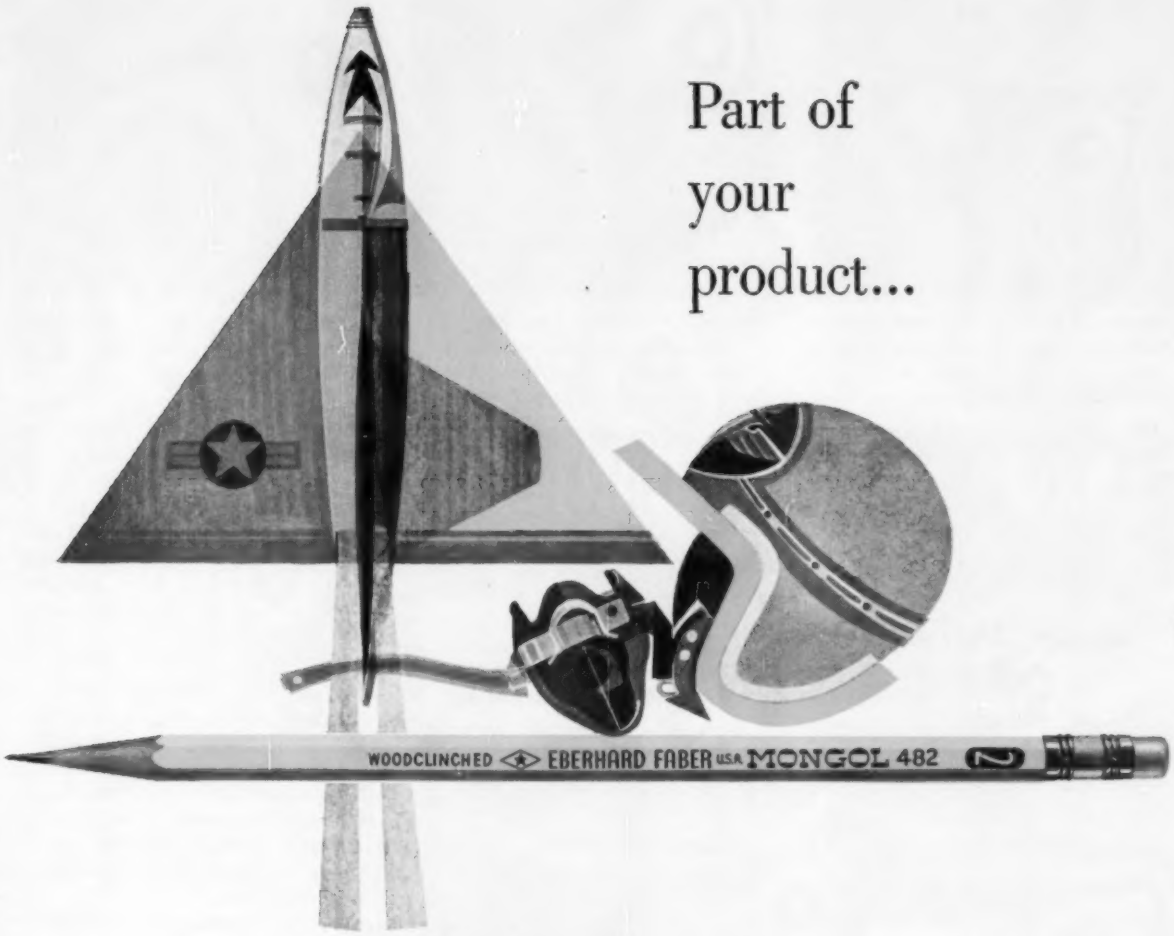
The roof can be turned into a lounge, ice skating rink, or restaurant. Windows will be pivoted so that they can be washed from inside the building.

The architects for the Newark Center Building are William E. Lehman, of Newark, and Steinhardt & Thompson, of New York. The construction company is Max Drill, Inc., of Newark. Fred E. Sutton, of New York is consulting mechanical engineer. The building is owned and operated by Newark Center Corp., 9 E. 40th St., New York.

Columbia University forms Institute of Accounting

Columbia University has announced the formation of an Institute of Accounting, which, beginning next fall, will offer undergraduate studies to prepare students for certified public accountant examinations and for qualification as teachers of accounting at elementary and intermediate levels. Courses in the Institute will lead to a bachelor's degree from the School of General Studies.

The director of the new unit will be James L. Dohr, professor of accounting at the Columbia Graduate School of Business. He will be assisted by an administrative committee which has been selected to govern the Institute. Fifteen members of the Faculty of Business will be assigned to teach under the new program.



Part of your product...

MONGOL is "part of the product" in every American industry... the preferred pencil of America-on-the-job! Mongol records the test pilot's reactions. Mongol verifies the bank teller's balances. Mongol helps write the big steelman's speech.

Mongol was the first well-known brand of yellow pencil. It's America's standard of quality—and today's Mongol is the smoothest-writing, blackest-writing, longest-wearing pencil you can buy. It's one of more than 3,000 products made by Eberhard Faber, the name people rely on for fine writing materials. Look for that name —Eberhard Faber—on EVERY pencil you buy!

Trademarks Reg. U S. Pat. Off.

EBERHARD FABER SINCE 1849

puts its quality in writing

NEW YORK • TORONTO

Automation—

(*From page* 33)

licates sets of punched cards at remote points by means of telephone, telegraph, or radio circuits. The transceiver hookup augments a network of telegraphic equipment which GE has been using to transmit problems and answers from the turbine department at Schenectady and Lynn to Evendale. Introduction of the transceiver into the network is expected to increase transmission speed, and make transmission more accurate. At present, telephone circuits are used in the present hookup, with cards reproduced from point to point at the rate of eleven per minute.

Problem data originating at Evendale are converted into punched cards and sent via the transceiver to New York for processing. Results can be returned to the point of origin by the same method. Evendale now acts as a clearing house for problems received from Lynn and Schenectady, and routes them either to its own 701 or the New York machine, but GE plans to install transceivers at Lynn and Schenectady shortly, so more rapid communication will be possible between all four points.

The station at IBM headquarters in New York will be discontinued later this year when General Electric receives additional IBM data processors.

Electronics meetings scheduled

The American Management Association will sponsor the first of a series of annual conferences on electronics in New York this month. A "practical approach" to the subject will be stressed in the meeting, to be held at the Hotel Statler, February 28-March 2.

Although the management group has held special conferences on the subject before, and much of the program was devoted to electronics at its annual office management meeting in New York last October, this month's conference will represent the first time AMA has scheduled a conference on the fast-growing new field in its regular series of yearly meetings.

Opening speaker at the conference will be Don G. Mitchell, chairman of the board, Sylvania Electric Products, Inc., and chairman of the executive committee, AMA, who will discuss electronics from the viewpoint of top management. The remainder of the morning session and the early part of the afternoon will be devoted to "Hardware"—three types of commercial data processing machines now available. Large, medium, and small scale equipment will be discussed in terms of internal operations, capacities, and speeds; cost; and input and output devices.

Speakers participating in the program, will be James Gibbons, Manager, Price Waterhouse and Co., New York; C. W. Adams, Director of Office Methods and Procedures, Westinghouse Electric Co., Pittsburgh; and Joseph E. Carrico, Manager, Arthur Andersen & Co., Chicago, Ill.

Following the analysis of equipment, L. E. Grimes, general assistant controller, E. I. du Pont de Nemours & Co., Wilmington, Del., will outline "A Preparatory Program," in terms of the work now being done at du Pont in its two-year study of the potential of electronic data processors for its operations.

Final speaker of the first day's session will be Charles C. Laubacher, Office Service Manager, Georgia Division, Lockheed Aircraft Corp., Marietta, Ga., who will describe the steps by which mechanization specialists in his firm proved to management that they needed a large data processor to meet management's demands for improved information.

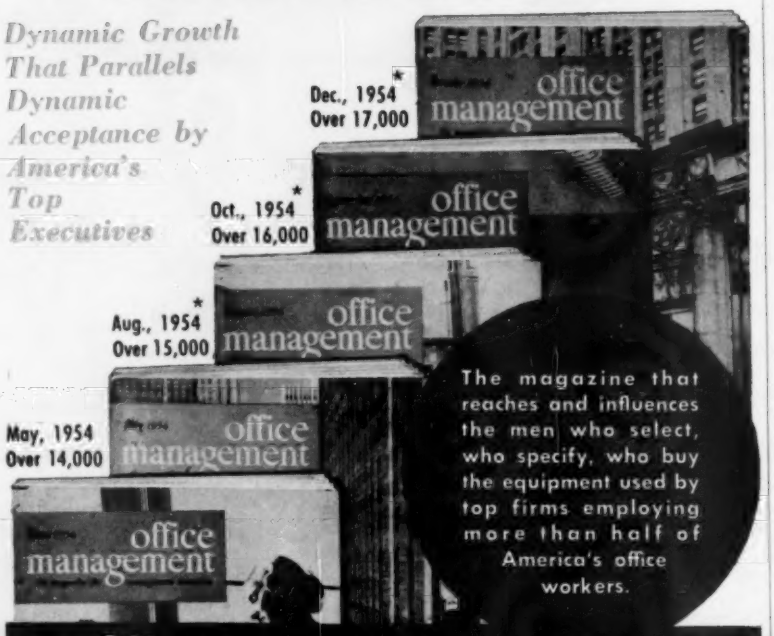
The morning session of the second day of the AMA conference will be devoted to "Making a Feasibility Study." Speakers will be four officials of the Chesapeake and Ohio Railroad, which bought a large scale electronic computer last fall. Their presentation will

(*To page* 44)

18,000 AVERAGE NET PAID GUARANTEED
For the First Six Months of 1955

Up, Up, Up, Goes
OFFICE MANAGEMENT

Dynamic Growth That Parallels Dynamic Acceptance by America's Top Executives


Dec., 1954 Over 17,000
Oct., 1954 Over 16,000
Aug., 1954 Over 15,000
May, 1954 Over 14,000
office management
The magazine that reaches and influences the men who select, who specify, who buy the equipment used by top firms employing more than half of America's office workers.

office management
THE MAGAZINE FOR MANAGEMENT EXECUTIVES
A GEYER-McALLISTER PUBLICATION
212 FIFTH AVENUE • NEW YORK 10, N. Y.

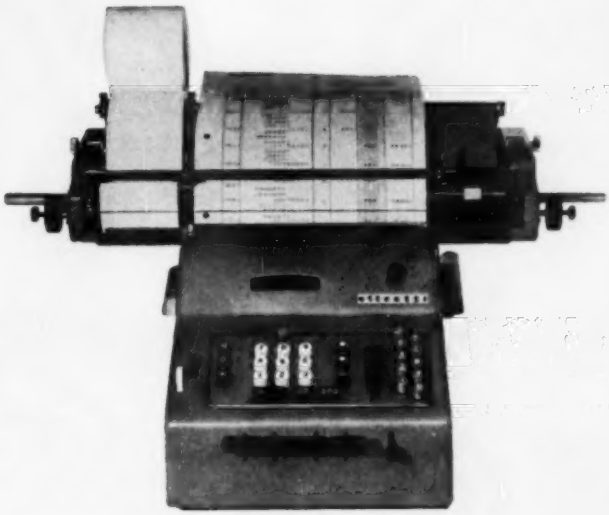
* Subject to verification by A.B.C. audit.

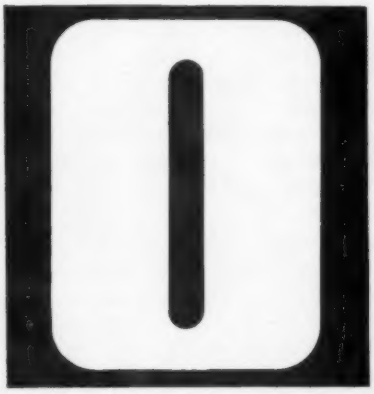
Olivetti Printing Calculator

"Electrosumma 14" Adding Machine

"Electrosumma Duplex" Adding Machine

"First." **Shown at right is the Olivetti Automatic Carriage Printing Calculator, the first and only printing calculator with a carriage, providing automatic and shuttle carriage operation. It automatically calculates, and prints desired figures on record-forms, automatically moving to the proper columns, for mechanized bookkeeping. The machine can perform 21 separate operations automatically, in desired sequence; the sequence can be quickly changed. Its platen splits, takes a 3 inch tape; the machine then operates as a printing calculator, providing fully automatic (short-cut) multiplication and division, and as a speedy 10-key adding machine with direct subtraction and automatic credit balance. It is, in sum, 3 machines in one. Capacity 999,999,999.99. Other business arithmetic machines by Olivetti are shown above, including the Olivetti Printing Calculator, completely and uniquely automatic, proven thoroughly dependable in 7 years of commercial use; more than 20,000 of them are in use in the United States.**





Olivetti Corporation of America
Dept. EP, 580 Fifth Avenue
New York 36, New York

Gentlemen: I'd like to know more about these Olivetti machines: Automatic Carriage Printing Calculator ( ), Printing Calculator ( ), Duplex Adding Machine ( ), Adding Machine ( ). Without obligating me in any way, please let me have this information as soon as possible.

Name .....

Title .....

Company .....

Street .....

City ..... State .....

Bing THE BUSINESSMAN FINDS REAL COMFORT IN HIS HARTER CHAIR

Paramount Star Bing Crosby, Vice President of Minute Maid Frozen Juices, uses the Harter 65 in his office and dressing room.

The handsome Harter 65 Executive Armchair is every bit as comfortable as it looks.

"It's the finest!" That's how Bing Crosby describes the comfort and quality he finds in his Harter executive posture chair. And knowing Bing's relaxed art of making hard jobs seem easy, you can trust him to choose the posture chair that helps him work in true armchair comfort.

You'll enjoy the same superb comfort in the Harter 65. It has luxuriously deep foam rubber cushions molded to fit in seat, back and arms. Precise handwheel controls adjust this chair exactly to your stature to encourage healthful posture. Rich upholsteries, flawless finishes complete the fine look of success this chair gives an office. Write for informative booklet, "Posture Seating Makes Sense." We'll send name of your nearest Harter Dealer.

Harter Corporation, 232 Prairie, Sturgis, Mich.

HARTER
STURGIS, MICHIGAN
POSTURE CHAIRS

trace introduction of the subject to top management, creation of an interdepartmental group to measure the uses of a computer, and the evolution of plans for fullest possible computer use. In addition, the C. & O. executives will discuss the difficulties involved in using the large scale computer to strengthen management control, and to make possible new analytical approaches to management problems.

Chesapeake and Ohio executives who will participate in the session are William Bamert, Assistant to the Vice President—Finance; A. F. Dell Isola, Research Assistant Vice President—Finance; John F. Feagler, Chief Methods Research Officer; and E. L. Morrison, Superintendent, Freight Transportation System.

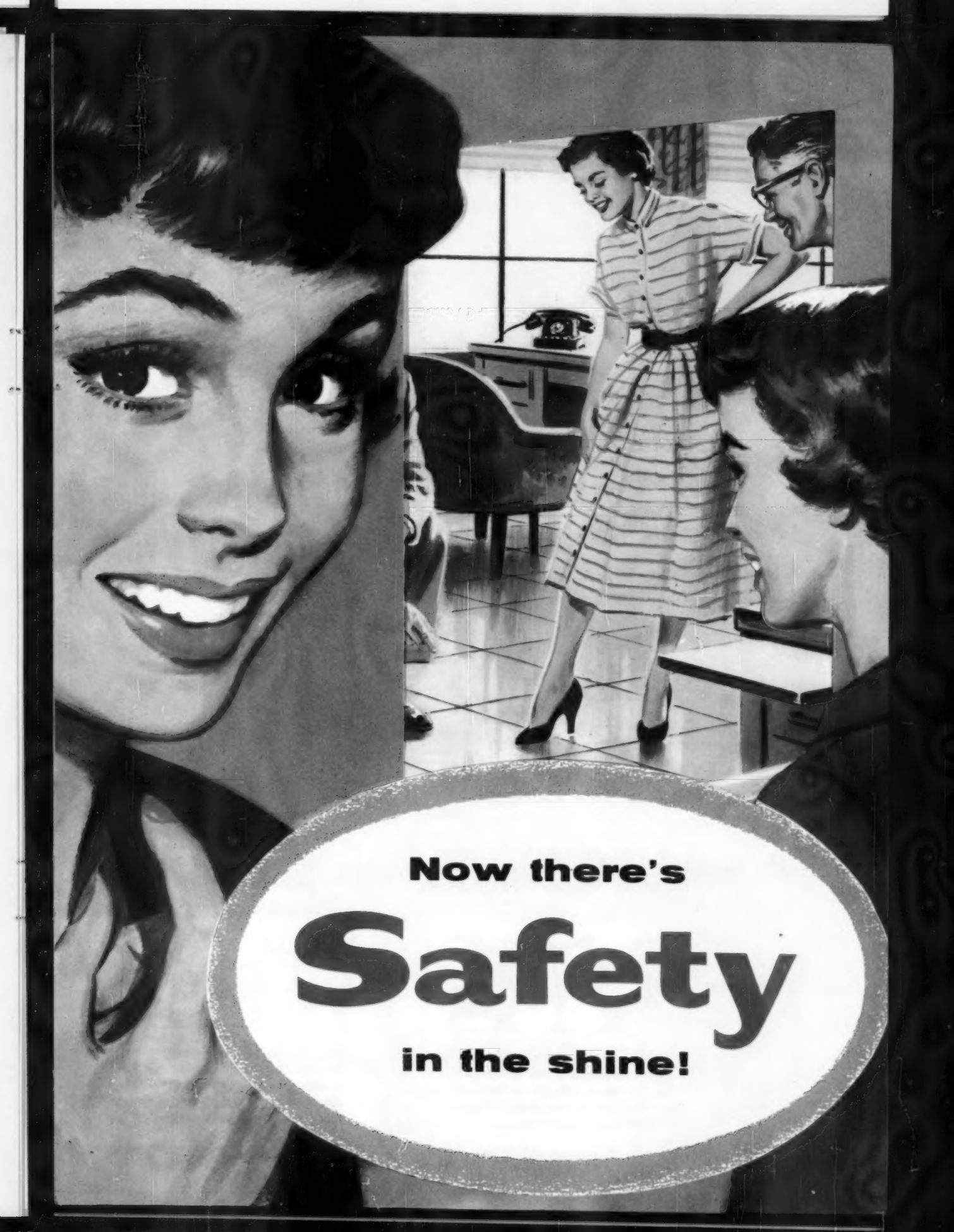
The afternoon session on Tuesday will open with "Critical Considerations for Applying Electronics," which will be discussed by John A. Higgins and Basil Regione, partners, Arthur Andersen & Co., Chicago. Last talk of the day will be given by William E. Eggleston, Machine Procedures Accountant, Commonwealth Edison Co., Chicago, who will discuss "Programming Problems and Costs."

The morning session on Wednesday will be given over to analyses of applications of three specific computers by representatives of companies which have installed these particular computers. Applications of the IBM 650 will be discussed by Harold F. Hatch, Associate Controller, John Hancock Mutual Life Insurance Co., Boston; of the ElectroData System by Robert F. Rosenzweig, Programmer, Allstate Insurance Co., Skokie, Ill.; and of the Univac by L. C. Simmons, Controller, National Tube Division, U. S. Steel Corp., Pittsburgh.

"The Future of Electronics as a Management Tool" will be the subject of the closing talk, at the luncheon on Wednesday, by Thornton F. Bradshaw, partner, Cresap, McCormick and Paget, New York. He will discuss the implications of electronics, combined with an integrated data processing system, in expansion of management control and planning functions.

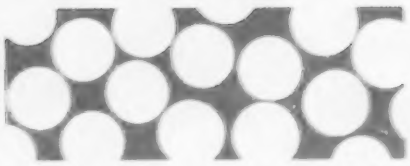
Two different sources this past month made statements intended to reassure those who see the accelerating trend toward automation in factory and office as a sign of unemployment and major economic dislocation. The Na-

(*To page* 68)

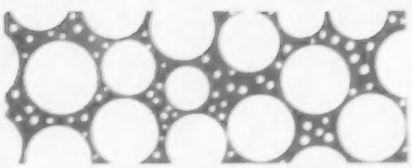

Now there's
Safety
in the shine!

ONE test will convince you-

DuPont LUDOX® in the wax puts a layer

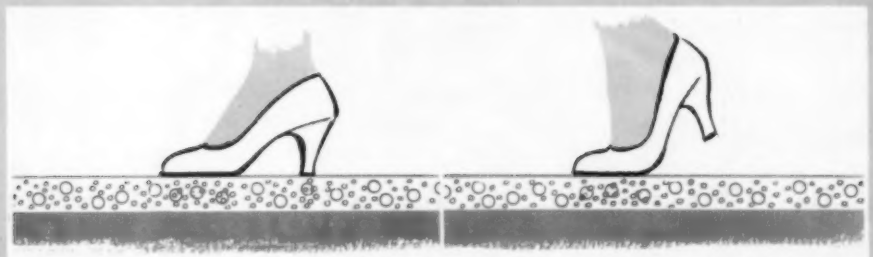


Here's the way a conventional wax film appears, magnified many thousands of times. The round balls are globules of wax imbedded in resins (shaded area) used in making floor waxes.



When "Ludox" colloidal silica is added, the tiny particles of "Ludox" form a random network throughout the wax film. Shifting of wax particles under foot pressure is thereby reduced.

# of safety on your floors!



These particles of "Ludox" cause a unique snubbing action which absorbs the foot's forward-moving energy.

At end of the step, the particles of "Ludox" provide traction against backward sliding. Maximum walking safety!

WAXES PROPERLY FORMULATED WITH "LUDOX" HAVE:

- **OUTSTANDING GLOSS**
- **EXCELLENT LEVELING PROPERTIES**
- **GOOD WATER RESISTANCE**
- **DURABILITY**

Whenever you need protection for busy feet, you need floor wax containing Ludox®

GET ALL THE FACTS about waxes containing "Ludox" from your wax supplier. He'll be glad to discuss your floor wax problem with you and recommend the formulation that's best suited for your needs. If for any reason he can't supply you, write to Du Pont at the address at right.

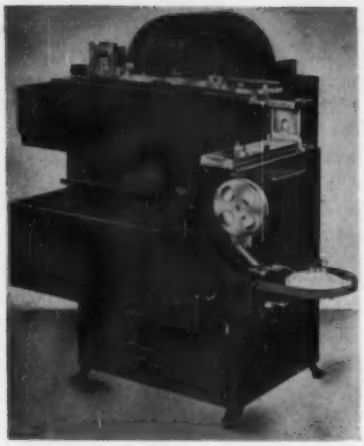
E. I. DU PONT DE NEMOURS & CO. (Inc.)
GRASSELLI CHEMICALS DEPARTMENT
WILMINGTON 98, DELAWARE

DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

Tools of the Office

Equipment for Integrated Data Processing



Addressograph-Multigraph's Class 6700 Automatic Graphotype

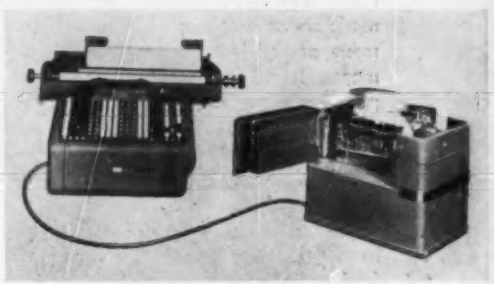
WHILE THE PROPHETS of automation excitedly describe the magic office of the future—which will probably be quite a different place than many of them imagine—the world moves into the realities of 1955. It seems to the editors of *Office Management* that this is a fitting time to summon the prophets and ask them to take a realistic look at the world of 1955. What will they find in the way of actual present accomplishment to suggest that their prophecies will come true? What machines, what systems are already in being to promise that their magic office will actually come into existence?

As a matter of fact, they will find that many of the dreams are no longer dreams. Some quite extrordinary office equipment already exists, already is on the market, and already has built up an impressive record of productive use.

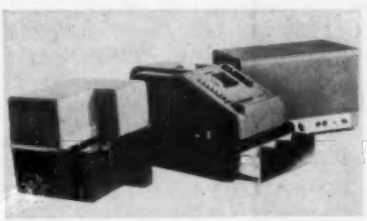
First, it is necessary to define some terms. The most significant accomplishment of the recent past has been the development of what is known as "integrated data processing." This rather forbidding trio of words, which will be frequently referred to hereafter as "IDP," refers to a principle by which clerical information can be copied—or posted—from one record to another without requiring a human being to do the actual copying, and with a minimum of human intervention can be used to perform its part in sequence in the completion of a clerical task.

In a limited sense, it can be said that the use of so simple a device as carbon paper is a form of IDP, since if more than one copy is created with a single writing, a certain amount of repetitive work obviously has been eliminated.

Commercial Control's Flexowriter



Burrough's Sensimatic-to-Tape



Telecomputing's Point O'Sale Recorder

Kleinschmidt Tape Transmitter

Teletype Tape Transmitter Distributor

Monroe Auto-Punch Bookkeeping Machine

IBM's Typewriter Card Punch

ElectroData's Datatron computer

This principle has been modified for use in bookkeeping systems of the so-called "one-write" type. Here forms are arranged one above another according to a predetermined pattern. Carbon, in spot form, or in the form of paper, is so placed as to provide for the automatic transfer of certain information from one form to another. Thus, in a payroll system, the forms may be so aligned that the writing of a payroll check will cause proper entries to be made on an employee's earnings statement, payroll journal, and other documents. In effect, these items have been posted without requiring a clerk to repeat each entry. It is this same principle of automatic transfer of repetitive information that is basic in integrated data processing.

But carbon paper is inadequate to handle the more complex jobs of transferring information. How, for example, can the name and address on a sales order be transferred to a production order, or to an accounts receivable ledger, or to an invoice? Not by carbon paper, surely, unless the bookkeeping is to become impossibly clumsy. But if a means can be found by which one office machine can cause another machine to copy that name and address automatically, then the same effect has been achieved. All that is necessary then is to introduce the information properly on the first machine.

The common language

In order for one machine to actuate another, it must be able to give instructions which the second machine can understand. Figuratively speaking, both machines must be able to understand the same language. Thus the medium by which one machine directs another has come to be known as "common language." In practice the common language is usually punched paper tape, or punched cards. The first machine punches holes in the tape or card; these holes, formed in a code, correspond to the original letters and numerals. The second machine recognizes these holes as indicating the letters or numerals originally punched, and it automatically reproduces the original characters. Machines which do not directly read or produce the common language are said to employ a "native language."

In the publicity given to such IDP installations as those at the Pittsburgh offices of the United States Steel Co. and the Aluminum Co. of America, considerable attention has been given to the use of punched paper tape as the common language. In these installations, five-channel tape is used because of its compatibility with existing wire communications facilities. Actually, paper tape is not the only possible common language. Punched cards have long been used for a similar purpose, although the kinds of machines that could use them were limited. They conceivably could be made the basis of quite an elaborate data processing system, particularly since it is now possible to punch cards from a standard electric typewriter. Moreover, magnetic tape, which is the internal language of most large computers, offers the possibility of being used as the common language between standard office machines as well. Other common languages may be developed, besides.

IDP is a system

It is important to realize that the term common language does not refer specifically to any one medium. Punched tape, punched cards, and magnetic tape all have their particular advantages and disadvantages, both operational and economic. The choice of a common language necessarily depends on the uses to which it will be put.

It is equally important to realize that an IDP system using one common language can be interconnected with another system using a different language. And further, that machines whose native language differs from the common language being used can nevertheless be fitted into the IDP system by means of equipment which converts the native to the common language, or vice versa. For example, a sales order may be prepared on a typewriter which creates a punched paper tape. The tape may be used to transmit the information over a telegraph line to a central office. On receipt, a new tape is punched. This tape may be fed into a tape-to-card punch, which converts the information to punched card form. The punched cards may eventually be used as an input medium into a computer, where magnetic tape is used as the internal language between the various sections of the computer. The computer may, in turn, present the finished data in the form of tape, cards or printed material.

In other words, the significant characteristic of integrated data processing is not the use of any given common language. *The basic principle is the automatic perpetuation of repetitive data.*

Another important point is that IDP does not necessarily involve complicated machines. If the one-write bookkeeping system be regarded as an elementary form of integrated data processing, it is obvious that the only common language agent need be nothing more complicated than carbon paper.

If the reader will refer to the article, "Integrated Data Processing for the Smaller Office," which appeared in the June and July issues of this magazine, he will discover an instance of IDP in which the only equipment required was a typewriter, a specially processed paper tape, which served as a spirit duplicating master, a hand-operated printing device to print from the tape, and a simple sorting device. The point cannot be made too often that IDP is not just for large offices. Even the smallest of offices can use its principles.

The ultimate conclusion, then, is that integrated data processing is not a set of machines. It is a *system*. As a system, it can make use of a variety of equipment. The only requirement is that there be some sort of interconnection between the various pieces of equipment.

It follows, then, that equipment for IDP must be thought of as of a "building block" character. Typewriters, adding machines, calculating equipment, electronic computers, addressing equipment, and many other office machines can be combined in an almost infinite number of ways. The means exist to convert paper tape to punched cards and vice versa, and to convert either of these to or from magnetic tape. Thus, any equipment which can read or produce any of these three media can theoretically be lined up in an IDP system. Moreover, because of the efficiency of modern transmission equipment, the various machines in a system can be located thousands of miles apart, which permits taking advantage of certain types of decentralized operation.

Before proceeding to a consideration of the types of equipment which may be fitted into an integrated data proc-

Next Month:
Duplicating Equipment

essing system, several preliminary ideas should be discussed.

The introduction of IDP brings with it two immediate advantages: (1) the elimination of the time and effort otherwise required in entering repetitive information on various records, and (2) the elimination of error in the repeated information, provided the original information is correctly entered.

Advantages inherent in computers

In addition, the system will also offer the benefits of whatever mechanization is introduced into it, in terms of speed and accuracy. In particular, it should be noted that if the IDP system is sufficiently large to warrant the use of an electronic computer, it makes use of the three great advantages inherent in the large computer. These are:

(1) *The ability of the computer to "think through" an operation.* This is sometimes referred to as the ability to handle sequential operations. What it means is that the computer can be told —in advance—where to get information and what to do with it, even through a long and involved procedure. This process of telling the computer what to do is called "programming."

For example, a computer taking its input from punched cards may be told to take a certain figure from the card, look into its own memory to obtain a new number, subtract that number from the first, multiply the result by another figure contained on a card, enter the result on another card, and so on. Such a procedure can be vastly more complex. The important facts are that the processing instructions can be given to the computer before any specific data are entered, and that, if properly done, no further instructions are required.

(2) *The ability of the computer to handle exceptional cases.* Much of the effort expended in a normal clerical operation is directed toward the handling of cases that do not permit routine treatment. These are often cases in which personal judgment is required—as in determining the validity of claims. In cases where a computer is not used, it has usually been considered best to give personal attention to each such case. The enormous memory capacity of a large computer, however, makes it possible to store in the computer a set of directions for dealing with many of these exceptions. Where the exercise of judgment is required, the computer can have quicker and more complete access to the necessary facts in many cases and can make a more impartial choice. Thus, a great many exceptional cases can be handled automatically, again reducing the need for human intervention in the clerical operation. Where exceptional cases still remain beyond the capacity of the computer to handle without further instructions, the computer can be instructed to signal that such a case has occurred, so that human guidance can be called upon as needed.

(3) *The phenomenally high speeds of electronic computers.* This particular advantage is self-explanatory. It is sometimes remarked that these speeds are unnecessarily high, since the output equipment cannot keep up with the computer in most cases, and there are those who argue that a computer can be made slower—and less expensive—and still have more than enough capacity. However, if the computer can store its answers in a form which will permit the printing or punching of the results as a separate operation — after the computer has completed the problem and gone on to another—as for example, during a night shift, a single computer can be used with a whole battery of printers or punches.

The break-even point

There appears to be considerable misconception about the amount of time a computer must be kept busy in order to justify itself economically. Roddy F. Osborn, Manager of the Business Procedures Section at the Louisville plant of the General Electric Co., wrote, in the *Harvard Business Review* ("GE and Univac," July-August, 1954 issue):

"Our investigations have shown that a high-speed digital computer can be operated on even less than a single-shift basis and still return substantial net savings to the users. A computer does not have to be kept busy 24 hours a day any more than any other piece of equipment has to be used full time. It is not the number of hours of use that is important; it is the cash savings in measurable dollars effected through the use of the equipment.

"In our own installation we figured on reaching the break-even point when the computer is used only two hours per day. And, in computing the break-even point, savings were evaluated only in terms of salaries, space rentals, and equipment depreciation applicable to those clerical jobs eliminated in four limited routine applications. No value

Clary's input keyboard

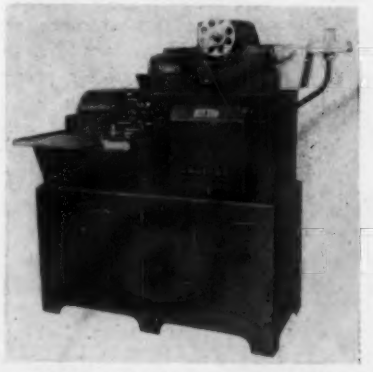
was given to such intangibles as more prompt reporting, the ability of management to make more informed decisions quicker, and reduced investment in inventory. Had these factors been included, a break-even point could be reached with fewer applications and less computer time."

Mr. Osborn added that this installation is designed to serve 5,000 employees in the Louisville plants and that its Univac is expected to operate only ten hours a week.

Essentially the difference between a large computer and a small one is a difference in the memory capacity. Many computers are constructed on a "unitized" pattern, so that additions can be made as required. Often memory units can be added, so that the capacity of one type of computer will differ from one installation to another.

Another difference is that a large computer can be designed to perform more rapidly than a small one.

There is general agreement that no company should install a computer in the assumption that the computer, as an end in itself, will solve all data processing problems. If an efficient data handling system has not first been designed to satisfy the particular needs of the company, the computer will merely turn out inefficient work more rapidly than it was done before.



Underwood's Tape-to-Card Punch

It is often pointed out, in fact, that when a company makes a careful study of its clerical work flow it can often improve its own systems to a point at which installation of a computer would not justify its cost. It is also generally agreed that if a company has streamlined its procedures to make effective use of punched cards, it is usually in a better position to set up a computer installation than one which has not had the experience of using punched cards. At the same time, it is observed, it should not be necessary to install a punched card system merely to prepare for the use of a large computer.

The space so far given in this article to computers should not be taken to mean that an integrated data processing system must necessarily contain a computer. Again it is pointed out that IDP is a system, not a set of machines. In examining the potentialities of IDP, a company would do well to call on expert systems men—its own, or outside consultants. A new installation need not involve sweeping changes. Some companies have felt it advisable to begin by introducing IDP in small, limited areas, with a view to obtaining experience which they could later call on in expanding the operation.

There seems to be little doubt that a company which can benefit from IDP has nothing to gain by waiting to begin its investigations. The argument that present equipment will quickly become obsolete is less a factor in this field than elsewhere, since much of the equipment is available on a rental basis. Moreover, to wait for later models is to miss the opportunities offered now. To defer the undertaking on the grounds that better equipment will be produced in the future is something like refusing to fly in a propeller-driven plane in 1955 because by waiting a few years until jet transports are introduced, one might save a few hours.

Besides, an IDP system cannot be set up overnight. Months, and sometimes years, are required for proper planning.

The economics of integrated data processing, of course, is a matter for the individual company to determine. There have been those organizations that in their haste to use the newest equipment failed to study their true needs and the actual costs involved; these companies may feel disillusioned on the subject of automation. But this is not a fault of the IDP concept—only of poor planning in the individual case.

Tools of the Office

The studies required to determine the feasibility of converting any clerical operation to IDP methods should be undertaken with seriousness of purpose. In large companies, these researches may be quite elaborate. No company should expect to be able to determine what IDP has to offer in its own case without considerable study. Ultimately, the value of conversion will be dependent on the single question: will it save money?

Where figure work is a major part of a company's operations, however, as in the insurance field, the following remarks will be of interest. Charles E. Becker, president of The Franklin Life Insurance Co., of Springfield, Ill., was quoted in the March, 1954 issue of *Systems Magazine* as saying: "We are convinced that the insurance field in general will not be able to keep up with the continued demand for its services without introducing electronic data processing equipment to handle the heavy volume of paperwork which future expansion will bring. The physical problem of finding enough room for the employees and office equipment needed would be staggering in itself."

IDP may become a necessity

There is evidence, that, in certain fields at least, a company which does not acquire the means of processing its paperwork more efficiently than is possible without IDP will be unable to meet the competition of its more up-to-date contemporaries. Integrated data processing may thus even become a factor in economic survival.

One significant development that has been noted by experts in the field is the growing need for systems men to be able to cross the old departmental lines. While integrated data processing has been thought of essentially as an office phenomenon, its reach can extend well outside the office. For example, in one aspect of merchandising record keeping, pre-punched tags can be attached to garments or other goods. After sale, the tags can be introduced into converters which will transfer relevant information (such as size, price, department, etc.) onto a standard punched card, or onto a punched paper tape. Obviously, in such a case the retail sales organization must be coordinated with the accounting organization if the system is to be effective.

Similarly, the various kinds of point-of-sale equipment for recording original accounting information in tape or card form at the time of the sale must be set up to produce records which can be used in other parts of the organization.

Still another possible application is the use of employee identification cards with pre-punched information. Used in place of time cards, they originate certain payroll accounting records in the factory itself.

It is clear, therefore, that the ultimate uses of integrated data processing will penetrate into all activities of a company, including its production facilities, its warehouses, its sales departments—in short, into every function which may be asked to keep records of any sort.

In turning now to actual equipment for integrated data processing, it should be repeated that such equipment must be thought of as modular in concept. That is, while the basic units for performing a variety of office functions already exist, it is the combination of these units into systems that is important. This must be left to the systems expert. But in the pages that follow are described a number of machines that are on hand in 1955. They are presented in what is believed to be the first survey of this type to appear in a business magazine.

For convenience, these machines are grouped, in this introduction, in five categories: (1) data originating equipment, (2) conversion equipment, (3) transmitting equipment, (4) data processing equipment, and (5) output equipment. The dividing lines in some cases are none too distinct, but this outline at least provides a basis on which to discuss the equipment.

In the field of data originating equipment are included all machines that create an original common language record. Some of these units exist solely to create that record, others produce it as a by-product of some other operation. In the former category are keyboard-type units that punch paper tape or cards or directly produce magnetic tape records. The information to be encoded is entered directly.

Also in this group are machines that punch point-of-sale tags for use with merchandise. Such tags may be produced individually but more often a group of tags containing identical information is turned out automatically in quantity after the desired information has been selected manually.

Punches also exist to create punched cards in response to information marked on a card with a special pencil —the familiar process known as mark-sensed punching.

In the category of equipment producing a common language record as a by-product of some other process are typewriters, adding machines, calculating machines, accounting machines, cash registers, and certain combinations of teletypewriters with tape perforators. Most of these produce paper tape, but some create punched cards. The inputs to these may be manual, or from previously prepared cards or tapes.

Possibilities for decentralization

Data originating equipment may be located in a central office or at an outlying station. To the extent that data cannot be recorded in common language form at the place where it actually originates, the data processing system is not completely integrated. However, the more outlying stations exist, the more original equipment, together with appropriate transmitting equipment, is necessary, and while it may be technically feasible to supply this equipment, it may not be economically sound. Obviously, an analysis of costs must be made in each case and each must be decided individually.

Conversion equipment exists to make it possible either to transmit information from one place to another or to make it usable in a machine which cannot take it in its original form—in other words, to "translate" data from a machine's native language into the common language of an IDP system, or the reverse. Such equipment includes tape-to-card punches, card-to-tape punches, ticket converters (to create standard punched cards or tapes from pre-punched tags), and various input and output devices used in connection with computers to make it possible to convert punched tape or punched card records into magnetic tape records, or to convert the magnetic tape output information into punched tape, punched card, or printed form. An astonishing device now in the later development stages can read *printed* numbers and convert them into a punched tape; presumably the same principle can be used to punch cards.

Transmission equipment most often used is that in connection with wire transmission. It includes units which read a punched tape and send the information over telegraph or telephone wires.[9] At the other end of the line are tape punches which convert the electrical signals into paper tape. Tape punches and readers may also be combined with teletypewriters, to produce printed copies of material being received or sent by means of tape. Also offered is equipment by which punched cards may be "sent" by wire; the information on the card is converted into electrical impulses, which, on receipt at the other end, actuate a card punch. This equipment has also been operated by radio. Also related is a variety of switching equipment which controls the channeling of encoded messages. In development is a system which makes it possible to punch a code signal in a tape in order to direct the message automatically into a specific channel at the receiving end. This is designed to allow messages to be classified automatically as they arrive.

In addition to wire and radio transmission using punched tape or card inputs and outputs, information can be transmitted by the facsimile method to produce visual copies of material to be processed.

The data processing equipment field is quite large. It includes adding and calculating machines, typewriters, accounting machines and other basic types. Electronic computers now range in size from a relatively small desk computer priced near $30,000 to the giant brains that cost a million dollars.

Computers adaptable to various systems

The internal language of electronic computers is invariably of the magnetic type. Storage units (memory units), however, may be magnetic drums or magnetic cores, as well as magnetic tapes. Input to some computers is by means of punched cards, the information being converted to a magnetic medium by a unit which is considered part of or accessory to the computer. In other cases punched tapes are used, with the computer again making the conversion. Additional information, particularly programming instructions, can generally be entered on magnetic tape from a control panel, the entries being made manually. In some cases original data are prepared on magnetic tape before it is fed to the computer.

Except for electronic computers, most of the equipment in this category performs in the same manner as standard office equipment, the only difference being its ability to employ a common language.

Marchant's Miniac system

In the category of output devices are all those mechanisms which show the results of computation, such as card and tape punches, printers, and the like. Information recorded on cards or tapes presumably will be either forwarded for further processing or stored for subsequent processing. Information printed in any form may represent an end product. At present several manufacturers offer printers designed to create records at the rate of 900 lines a minute; this may be regarded as a reasonably satisfactory answer, for the time being at least, to the charge that output devices are much too slow in comparison to the speed of electronic computers.

Also in this category may be considered other units which create end products or by-products of the data processing activities. Examples include an automatic graphotype designed to prepare address plates from common language inputs, and an electronic printer which reads printed information on punched or other cards and reproduces it in printed form for such purposes as the addressing of magazines. In the latter case, the printing on the punched cards may itself be a by-product of the card-punching process, so that the final address has been produced by IDP methods beginning as far back as a subscription order. It also appears that the facsimile process itself has some possibilities for the future as a sort of common language agent.

Before leaving this last category, mention should be made of the use of standard duplicating equipment in integrated data processing. There are numerous instances in which it is desirable to make more than one copy of a document. In some cases the additional copies may be prepared by the ordinary method of making carbon

copies as the record is prepared. This is possible where a typewriter or a page teleprinter is used to receive or originate a document. But it is also possible to create, midway through the IDP system, a master for use with such standard equipment as spirit or offset duplicators; stencils can also be cut in the same way. Certain types of facsimile equipment can cut stencils as well. And when one considers the various types of copying equipment, including units of the diazo, photographic, Thermo-Fax, and xerographic type, it would appear that the possibilities for perpetuating original information without human recopying are almost without limit.

Beginning immediately below is an alphabetic list of major manufacturers of equipment which can be used as part of, or accessory to, integrated data processing systems. Descriptions of significant equipment are included, together with photographs of selected machines. Naturally, such a survey cannot be complete, although it has been the purpose of the editors to present this material as completely and impartially as space and time have allowed.

It is believed that the variety of equipment actually being marketed at present will astonish many who have believed that integrated data processing was only a distant prospect for the average office. If the reader will bear in mind the enormous flexibility of much of this equipment, its possibilities for being combined with other equipment in an almost infinite variety of ways, it should be clear that whatever miracles may descend on the office in the future, integrated data processing as a means of increasing efficiency in the office is here and flourishing in 1955.

The Equipment

Addressograph-Multigraph Corp.

1200 *Babbitt Road, Cleveland, Ohio*

This company, long known for its extensive line of duplicating, addressing, and related equipment, has entered the IDP field with its Class 6700 Automatic Graphotype. (*See illustration, page* 49.)

This graphotype prepares address plates using 5-channel punched paper tape as its input. Operation is completely automatic, except for loading and unloading of plates and tape. Once loaded, the machine automatically feeds blank plates into position, embosses information from tape, spacing and tabulating the information correctly, rolls plates, and discharges completed plates into the receiving tray.

The machine will stop automatically if it runs out of tape or plates or if any mechanical malfunction occurs.

The tape can be used again to actuate other equipment.

This machine is available on a purchase basis only.

The company also manufactures the Multilith line of offset duplicators, which can be used to make copies from paper plates prepared on a typewriter when the original tape is prepared.

Also of interest is the Addressograph Electronic Printer, Model 855, which makes use of the facsimile process to print four-line labels by scanning cards on which information has been typed. Since this information can be prepared on punched cards in conjunction with other IDP operations, this equipment can also be adapted to integrated data processing. Labels can be prepared at a rate of from 7,000 to 10,000 an hour.

ANelex Corp.

150 *Causeway St., Boston*

ANelex manufactures a high-speed printer designed specifically to transform computer outputs into usable printed form. It can be adapted also to print from intermediate storage media, such as magnetic tape, magnetic drums, and core matrix, or from punched paper tape or punched cards.

Operating speed is 15 lines a second, printing a 40-character line. Speed and character count per line are adjustable. Machines under construction are expected to print 108,000 characters a minute, or three times present capacity. Numeric and alpha-numeric types are available, with from 36 to 56 characters. (*See illustration, next page, bottom right.*)

Rotating engraved rings are used for printing. Present models make single copies; new models in process will be able to make carbon copies or reproducible copy.

The machine is table-mounted, weighing about 150 pounds. Height is 25 in., width 28½ in., depth 20 inches.

Present standard machines are available in about three months. Others, with special features, may require up to nine. Machines are offered on a purchase basis.

Tools of the Office

Burroughs Corp.

6071 *Second Ave., Detroit*

Burroughs has been active in various phases of integrated data processing research. New products include:

(1) Sensimatic-to-Punched-Tape Equipment, an accounting machine with punched paper tape attachment. Basically, it is a standard Sensimatic machine, unchanged in size or in capacity to perform normal accounting functions, but it can punch desired information in 5-, 6-, 7-, or 8-channel tape. Data can be rearranged internally and punched into tape in any sequence required. Accounting records may be prepared in printed form as usual, but the printed output need not be in the same order as the information punched into the tape. The punch is in a separate unit, connected by cable, which can be turned off so that the accounting machine can be used like a conventional model. This machine is offered on a purchase basis. (*See illustration on page* 49.)

(2) Series G high-speed printer, designed to print 900 lines a minute, taking inputs from punched cards. Two card feeds are provided; cards in each may be read at the rate of 900 a minute, and both feeds may run simultaneously. Up to seven carbon copies may be printed. Each letter or number is formed by the imprint of tiny wires in a 5 by 7 matrix. Since the characters can be formed in reverse, it is possible to print on the back of a card, using an appropriate carbon backing. Both front and back of a document can be prepared at once. In addition to printing, this model can punch cards simultaneously, and can accumulate one or more totals and transcribe at listing speed. Card punching capacity is 450 a minute in any of 40 columns. The punch unit may be used as a summary punch, reproducer, gang punch, and interpreter. The printing unit can handle continuous forms or individual sheets as well as cards. The machine is available on a lease plan basis.

(3) Model E101 desk-size electronic computer, which uses a Burroughs bookkeeping machine as its input and has a semi-gang page printer for output. Priced at $32,500; and available also on a rental basis, this model was designed to satisfy the need for equipment midway in size between fully automatic digital computers and standard desk-top calculating equipment.

Burroughs has also built large electronic computers, including the UDEC, which features unitized construction, permitting assemblage of a computer from basic units with a minimum of special design. Of unusual interest is a new device which reads serial numbers from travelers' checks and punches corresponding numbers on a card. Cards are produced automatically at the rate of 7,200 an hour. While working models have been built, this equipment is not yet on the market.

Clary Multiplier Corp.
San Gabriel, Calif.

This company is currently offering several units which may be used as accessories to computer installations:

(1) An electrical input keyboard, designed to furnish a means of entering numerical data and control signals into computers, storage devices, and other data processing equipment. It may be used at remote stations as part of a multiple hookup. It can also function to speed up certain accounting, billing, and information procedures, such as may be used in department stores and in industrial and business operations. Keyboard size varies from 7 to 11 columns, with nine number keys in each column. (*See illustration, page* 51.)

(2) A digital readout printer, used for printing electrical data. The manufacturer states that it is being used in conjunction with electronic computing equipment to record statistical data in product and inventory control problems. One model has eight columns of nine numeral keys; another model has twelve. Entries may be made up to 999, accumulated, and read out up to eight places in the first model, to twelve in the other.

Commercial Controls Corp.
1 Leighton Ave., Rochester, N. Y.

Commercial Controls is best known in the IDP field for its line of Flexowriters, which are, basically, electric typewriters designed to punch, read, and reproduce punched paper tape automatically as a by-product of document preparation. The documents themselves can be prepared automatically under tape control.

Models are available to use 5-, 6-, or 8-channel tape. Keyboards are of either three or four banks, some with single case, some with double case type.

The latest model, the Programatic, uses a program tape (which can be prepared on the machine itself) to control the tape punching operation automatically. (*See illustration, page* 49.) Any portion of the data typed on a form can be selected automatically and punched in one or two tapes while the form is being prepared. The second tape may use a different selection of data from that in the first, but may be still prepared as part of the same operation. If required, it is punched on a separate unit, also new, called the Motorized Tape Punch, which is connected to the Flexowriter by a cable. Automatic control is provided for all fixed horizontal and vertical form spacing.

Flexowriters are 17½ in. wide, 20 in. deep, and 10 in. high. Their weight is about 85 lbs. The price range is from $2,175 to $2,975 and the units are available on a purchase basis only.

The company expects in the near future to introduce models for punching and reading codes in the edge of cards as well as in tape.

Dennison Mfg. Co.
Framingham, Mass.

Dennison makes its entry into IDP equipment production with a model called the Print-Punch Marking Machine, which prepares pre-punched tags as a source of original sales data.

Tags for attachment to merchandise are prepared on this machine, which is capable of both printing the required data and punching it into the tag in either a 4- or 5-channel code. The tags can then be fed into units for conversion to punched cards or punched tape. Additional data may be entered manually into the record when tape is to be produced. In addition, the tags may be used directly as an input source for certain electronic computers.

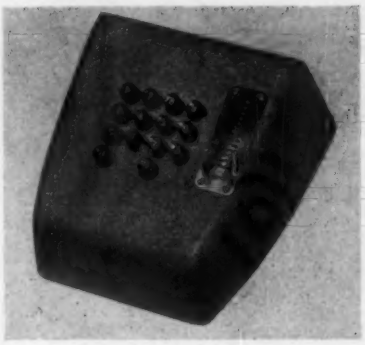
The marking machine may print individual tags, together with almost any number of stubs, or it may print a series of identical tags and stubs. When a predetermined number of duplicates are to be prepared, the machine can be set to stop when that number of tags has been punched.

One model takes cut tickets from a hopper, the other uses continuous fanfolded strips. Printing and punching speed is 200 a minute. Copy is set by dials. Tags may be color coded as well.

Other applications besides point-of-sale uses include tags for inventory control, production control, etc.

ElectroData Corp.
717 N. Lake Ave., Pasadena, Calif.

ElectroData, which is an affiliate of Consolidated Engineering Corp., also



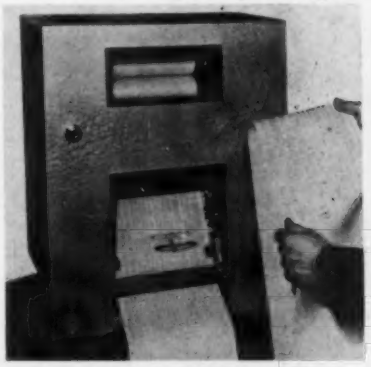
Wendon's Tapecorder

of Pasadena, manufactures electronic digital computer data processing systems, including components and accessories. The illustration in this section shows a Datatron computer. (*See page* 49.)

This computer may be considered of medium size. In its simplest form it uses paper tape for inputs, and a Flexowriter or tape punch for outputs. According to the company, average systems for office application, including computer, several input-output units, and power equipment, run in price from approximately $200,000 to $230,000. The equipment is also offered on a rental basis. A typical installation includes from 8 to 12 cabinets.

New in the system is a piece of equipment designed to convert information from standard punched cards for use in the computer. It also permits card punching as an output device. It will handle alphabetic and numeric information and is designed to make computer operation completely compatible with existing commercial punched card systems. It has a buffering system, making computer operation independent of card punching. This unit will be priced at less than $50,000.

An advantage claimed for this converter is that the printing of long re-



ANelex's Synchroprinter

ports can be accomplished separately from the computer operation, so that the high speed of the computer may be used for other purposes while the final document preparation is in process. A variety of card-fed printers and tabulators can thus be used in the computer system for such purposes.

Other equipment includes a manual tape punch of the single hole type for correction or insertion of information into existing tapes, a decimal keyboard for computer input, etc.

Electronics Corporation of America
10 *Potter St., Cambridge, Mass.*

ECA produces a line of electronic business machines, called Magnefiles, which are used to keep inventory figures up to date and immediately available.

Entries are made by means of a keyboard, but other possible input sources are punched tape and punched cards. The machine has magnetic drum storage which can be used to keep inventory information simultaneously in such categories as On Order, In Stock, Received in Period, Sold in Period, Returned in Period, etc. When new information is entered, the appropriate balances are changed and the new balances are stored. Information can be kept according to inventory units, dollars, or both. The machine has a capacity of 4,000 individual balances, with grouping into 40 sub-totals.

Output is provided for by means of an electric typewriter; punched tape or punched cards can be produced. The machine is designed to print out any balance within two seconds.

Magnefiles can also be used with punched price tickets as a point-of-sale recorder. It can be adapted to produce a customer's salescheck at the same time.

The units are approximately the size of an office desk: length, 48 in.; height, 33 in.; depth, 30 in. Weight is about 500 lbs. The equipment is entirely self-contained.

Magnefiles are available on a purchase basis; the general price range is from $20,000 to $60,000. Delivery is in from six to nine months.

Ferranti Electric, Inc.
30 *Rockefeller Plaza, New York*

This company offers a high speed tape reader which converts information in punched paper tape into electrical signals for entry into various types of electronic computing equipment. It can use either standard 5-hole tape or ⅞-in. tape. Tape is handled by friction drive.

This unit operates at a speed of 200 characters a second and can stop within the space of a given character. Several modifications of the basic unit are available.

The reader is priced at $1,500, f.o.b., Brooklyn, N. Y.

Friden Calculating Machine Co., Inc.
San Leandro, Calif.

Friden is featuring two IDP machines:

(1) The Add-Punch. This, basically, is Friden's standard ten-key adding machine equipped with a tape punching mechanism. It can be used to punch 5-, 6-, 7-, or 8-channel paper tape as a by-product of original adding machine operation. It can punch code numbers, such as order or invoice numbers, and any number of items of addition or subtraction, together with totals.

The Add-Punch can perforate tape at a speed of up to 20 characters a second. A window above the keyboard shows each item entered before it is printed, added, or punched. Control codes may be programmed for automatic punching.

The unit is 10 in. high, 15 in. wide, and 20 in. long. It weighs approximately 42 lbs. It is priced at about $1,500 and is also offered on a rental basis. It can be had within 30 days of ordering.

(2) The Computyper. This is a combination of a Friden calculator and a Flexowriter. It is used primarily for writing invoices. Quantity and price are typed and the extension is automatically computed and fed back to the typewriter, which types it automatically. The calculator accumulates extension totals and automatically writes the invoice total. It can also compute discounts, taxes, etc. While entries can be made from the keyboard, this equipment can be operated also by common language tape and can produce tape as a by-product.

The Computyper is 30 in. high, 31 in. wide, and 46 in. long and weighs about 500 lbs. It is now in the testing stage, but the company expects it will shortly be available, at a price near $7,000. It will also be offered on a rental basis.

International Business Machines Corp.
590 *Madison Ave., New York*

The list of IBM equipment for integrated data processing is impressive.

The Typewriter Card Punch, recently introduced, produces punched cards as a by-product of typewriting operations. It consists of two parts: an IBM electric typewriter and an IBM card punch, connected by cable. Punches may be of the printing or non-printing types. Two different types of cards may be punched during the same typing operation, by the use of the alternate programming device, which is a standard feature. (*See page* 49.)

The company has also been manufacturing, for something over a year, its Typewriter Tape Punch, which creates punched paper tape as a by-product of typing, and the Tape-to-Card Punch, which reads alphabetic or numeric information from punched tape and converts it into IBM punched cards.

The Electronic Data Transceiver, transmits and reads information directly from punched cards over telephone or telegraph lines. Two such units can thus, in effect, "send" punched cards from one to the other over great distances. Last summer it was shown that Transceivers could be successfully operated by radio. In a demonstration conducted by the U. S. Air Force and the U. S. Navy, punched card information was transmitted across the Atlantic by this means. (See *Office Management*, Sept., 1954, p. 60.) The Transceiver has made possible the interconnection of large computer installations with punched card sources and with each other at great distances. (For a description of such a setup, see *Automation in the Office* beginning on page 32 of this issue.)

The new Type 740 Cathode Ray Tube Output Recorder has a 21-inch tube on which the information computed by an electronic calculator can be shown as numbers, words, symbols, graphs, etc.

In addition, IBM manufactures an extensive line of punched card equipment of all types designed to perform a wide variety of calculating, tabulating, and other functions. Included is ticket conversion equipment which takes its inputs from merchandise tags and converts the information into punched card form. This equipment is for use in systems designed to record original sales and other data at the time and place of sale.

IBM's activities in the field of electronic computers are also extensive. Equipment ranges downward in size from the "giant brains," including the Types 701, 702, 704, and 705, and includes such equipment as the CPC, or Card Programmed Calculator, the Types 650, 607, and 604, the new "all-transistor" calculator (see *Office Management*, Nov. 1954, page 6), and many others, descriptions of which would be impossible in this space.

IBM equipment, with the exception of certain smaller items such as electric typewriters, is normally available on a rental basis only.

International Standard Trading Corp.
22 Thames St., New York

This company is an affiliate of the International Telephone & Telegraph Corp. and many of its products fit into the data transmission portion of the IDP picture.

A complete range of teletypewriter machines is offered. These units employ standard 5-unit telegraph code, or any variation required. Included are keyboards which punch paper tape; some of these are regular stock models, others may be specially ordered.

Other products are the following: Keyboards to create records on magnetic tape (specially ordered). Electromechanical and electronic equipment, including digital computers. Automatic sorting and routing equipment. Automatic inventory control systems for local and remote operation. Automatic and semi-automatic switching equipment for central office concentration, which is normally custom built. Automatic pneumatic tube systems and equipment for moving source data to and from the processing location. Other allied machines and equipment under development. Machines are also available to print out from magnetic and paper tape.

Regular production items can be purchased; special arrangements can be made in other cases.

A. Kimball Co.
307 West Broadway, New York

The Kimball Co. has been active in the point-of-sale end of integrated data processing for several years. Its principal machine in this field is the "75" punch marking machine. This unit punches tags and tag stubs designed to be attached to merchandise. Data can be both punched and printed, and the tags are designed to serve as a point-of-sale source of original sales data, which can then be fed into a tag reader/card punch for conversion into standard punched cards.

Variation in type size permits such items as price and size to be printed larger than other information. A total of 30 columns can be printed on a tag.

Information to be entered on a tag is set on a keyboard. The machine will then punch the required number of tags, stopping when the required number has been prepared. Tickets are cut off and stacked automatically. Rate of operation is 180 split tag sections a minute. Tags may be color coded to provide additional controls. The system is adaptable also to other accounting and bookkeeping procedures.

Kleinschmidt, Inc.
County Line Road, Deerfield, Ill.

This company manufactures a variety of equipment for data transmission over telegraph and other lines and by radio. Since five-channel paper tape is the basis of much standard transmitting equipment, Kleinschmidt units are employed to interconnect widely separated units in an integrated data processing system.

Equipment is available for reading, recording, and transmitting the common language. Included are tape readers which convert paper tape information into electrical signals for transmission, tape punches or reperforators for receiving the electrical impulses and punching a tape corresponding to the original tape, page teleprinters, and switching equipment. (*See page* 49.)

Standard equipment is obtainable on a 90-day basis; specially ordered equipment may require from 4 to 6 months. Rental arrangements, including installation and maintenance, are available, but most equipment is sold outright.

Logistics Research Inc.
141 S. Pacific Ave., Redondo Beach, Calif.

Logistics Research produces one of the smaller electronic computers, the Alwac III, which is priced at $60,000. This computer utilizes a Flexowriter with punched tape input and output. It is also available with a variety of different types of input and output equipment. Delivery on this system is normally six months.

Special purpose inventory systems are also obtainable. A feature of this equipment is the use of a high-capacity memory drum. When this drum was introduced, nearly a year ago, it was pointed out that it worked on a new principle that gave it a memory capacity said to be as much as 200 times greater than that of conventional magnetic drums. A minimum system of this type is priced at about $100,000 and requires from nine months to a year for delivery.

Printer for Remington Rand's Univac

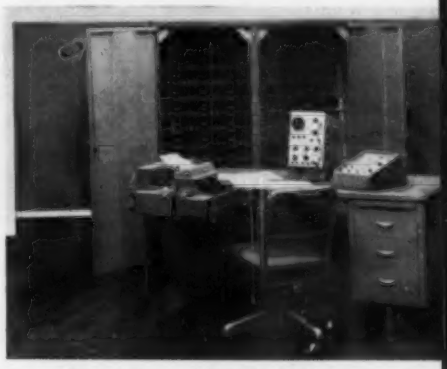
As many as ten electric typewriters can be connected to this machine at remote locations. The computer is designed to scan these machines for waiting problems on completing a previous problem. (*See illustration below.*)

Marchant Calculators, Inc.
1475 Powell St., Oakland, Calif.

Marchant is now offering the Miniac Data Processing System. (*See illustration, page* 53.) Included in this system are:

(1) An input source. This may be a Flexowriter of the tape-punching variety, a Flexowriter especially modified to permit direct manual input into the computer, an electric typewriter that both reads and writes magnetic tape directly, standard punched tape, and punched cards. Some of these may be remotely located.

(2) A Tape Information Processor, which is a sorting, collating, and logical handling data processor, operating at 1,000 alphanumeric characters per sec-



Logistics Research's Alwac III

ond on a continuous flow basis.

(3) The Miniac computer itself, which is a magnetic drum machine with 4,096 words of memory capacity and a five millisecond average access. It performs a wide variety of computations.

(4) An output device, which may be one of several types. These include magnetic tape, punched paper tape, a Flexowriter, a tape-operated line printer which prints 120 columns of alphanumeric characters at a rate of 15 lines a second, and punched card equipment or tabulating machine adapted for the purpose.

A special feature of Miniac is its capacity, in certain combinations, to use as a common language a novel magnetic tape capsule. The capsule measures 7¼ by 5¼ by 1¼ in. and has a capacity of more than 200,000 alphanumeric characters. This capsule plugs into and operates or is operated by the typewriter, the tape information processor, the computer, and the printer. Each of these elements reads and reproduces information on capsules.

Miniac equipment will be available later this year.

Monroe Calculating Machine Co., Inc.
555 *Mitchell St., Orange, N. J.*

Monroe is now offering two new types of equipment for integrated data processing:

(1) The Auto-Punch Adding Machine. This is a full-keyboard adding machine, available with listing and totaling capacities from 10 to 14 columns, which produces punched paper tape as a by-product of its operations. Models are offered to handle 5-, 6-, 7-, and 8-channel tapes. Group and grand total models are obtainable, with either wide or narrow carriages. The machines perform the same functions as standard adding machines. A key is provided for voiding incorrect information on the tape, and a printed record is created in addition to the punched tape. (*See illustration, page* 49.)

(2) The Auto-Punch Bookkeeping Machine. Like the Auto-Punch Adding Machine, this is a standard model adapted to punch a paper tape of 5, 6, 7, or 8 channels as a by-product of normal operations. A number of models are offered, ranging from relatively simple designs that give manual totals and sub-totals to completely automatic units with four registers. Two keys are provided for voiding incorrect data.

Both models are slightly larger than regular machines, but all units are of the desk-top type. They are available on a purchase basis.

Mountain Systems, Inc.
864 *Franklin Ave., Thornwood, N. Y.*

This company is producing the Modac electronic data processing system, employing a digital computer. It is considered a small system, considering the giant size of the largest equipment of this type.

The common language basis on which Modac operates is punched paper tape such as is used in standard teletypewriter systems. The system is composed of modular units to allow it to be adapted to the user's needs, and also to simplify programming. A typical installation requires about 12 square feet of floor space and weighs about 750 pounds.

The equipment is considered particularly adaptable to inventory and production control, sales order processing, sales analyses, and other functions. It is offered on a purchase basis, with delivery in 6 to 10 months.

The National Cash Register Co.
Main and K Sts., Dayton, Ohio

Electronics Division:
3348 *W. El Segundo Blvd., Hawthorne, Calif.*

During the last year, National Cash Register announced a medium-size electronic data processing system, incorporating a computer. It is priced in the $150,000 to $200,000 range. This system is designed primarily to handle such problems as inventory control, purchasing analysis control, production control, and sales analyses. It can perform all arithmetic functions, can sort and collate data at high speed, and can print out control reports.

Input media are punched paper tape and magnetic tape. A punched tape reader attached to the console typewriter enters information from paper tape on magnetic tape. Information may be stored in auxiliary magnetic tape units, supplementing the computer's own storage capacity. As many as eight auxiliary units can be used, providing a total storage capacity of eight million decimal digits.

Output devices include magnetic tape and paper tape. Multiple punched tape printers can be connected, to provide output in printed form.

Also offered is a punched paper tape recorder, designed to be connected to a window posting machine for savings banks. This model makes possible the recording on paper tape of vital banking data at the time and at the point of transaction. The tape can be used later for electronic processing.

In addition, similar recorders are being developed for use with cash registers, adding machines, and accounting machines.

Raytheon Mfg. Co.
Waltham 54, *Mass.*

Raytheon, which built the Raydac electronic data processing system for the U. S. Navy, is now manufacturing a business version of this system, called Raycom.

The basic input to the system is by means of punched cards. The system itself contains a card-to-magnetic-tape-converter to reduce all data to electrical impulses for direct input to the computer.

The computer performs computation, sorting, and other functions. It can sort approximately 3,300,000 decimal digits a minute, and it can scan stored information at the rate of 560,000 decimal digits a second. Magnetic tape units provide additional storage.

When processing of data has been completed, the results are converted from magnetic tape for printing, card punching, or tape punching.

Remington Rand Inc.
315 *Fourth Ave., New York*

Remington Rand, widely known for its Univac, has recently announced a smaller electronic data processing system called the Univac File-Computer. This equipment is designed to combine the operation of a high-speed electronic computer with high-speed filing.

The File-Computer takes inputs from punched cards, punched paper tape, magnetic tape, or from 10-key printers or electric typewriters. Output can be directed to any of these.

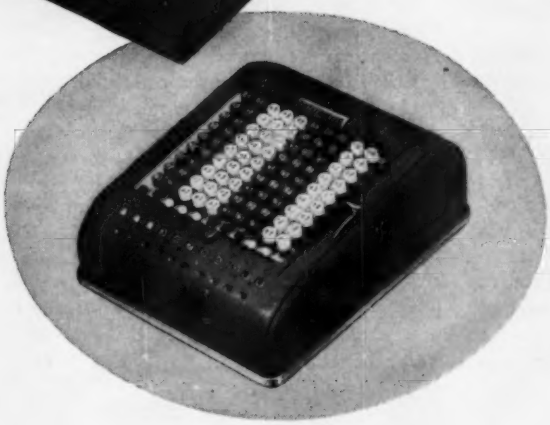
The system is designed to permit fast random access to all data stored in its magnetic drums. Thus, specific inventory, cost, or other figures on any unit account are instantly available. Unsorted data can be processed completely in a single program; computations may include both filed and input figures.

A multiplexing unit is provided

Famous
the world over
for instant answers—
automatically accurate!

COMPTOMETER®

Adding-Calculating
Machines



More and more, businesses everywhere are counting on Comptometer Adding-Calculating Machines . . . to speed figure work . . . to cut profit-wasting time and costs.

Direct action gives instant answers. Three-way control prevents errors--signals the operator by sight, sound, touch. Floating touch speeds work, dual-action gives you two machines in one. Call your Comptometer representative, or fill out and return the coupon below.

COMPTOMETER ADDING-CALCULATING MACHINES are made only by Felt & Tarrant Manufacturing Co., 1742 N. Paulina St., Chicago 22, Ill. Offices in principal U.S. cities and throughout the world.

FELT & TARRANT MANUFACTURING COMPANY

1742 N. Paulina St., Chicago 22, Illinois

Please send me, without obligation or cost, complete information about the world-famous COMPTOMETER ADDING-CALCULATING MACHINES.

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

which permits the simultaneous operation of up to 24 input-output devices of all types. Several unrelated types of transactions can be processed simultaneously on different programs. For example, invoices can be prepared, inventory brought up to date, sales figures kept current, back orders listed, and the information be made available for sales analysis, and while one of these operations is in process, the system can also be handling such problems as payroll or production control.

The equipment is offered on either a purchase or rental basis. Delivery is scheduled for this year. The purchase price ranges from $300,000 to $500,000, rentals from $4,500 to $8,000 monthly, varying with the number of units.

Remington Rand's Univac system is one of the most familiar of the giant computers.

For use in connection with electronic computers, the company makes the Unityper, an electric typewriter which records information both on paper and on magnetic tape.

In addition, Remington Rand offers an extensive line of punched card equipment, much of which can be employed in an IDP system.

Soroban Engineering, Inc.
Box 117, Melbourne, Fla.

Soroban's contribution to IDP is in the realm of manufacturing components and devices which can be assembled to provide custom data processing, control, and computing facilities, and in providing consulting services. Among its products are:

(1) Paper tape perforators, for punching paper tape of various types. Model GP-100 series units are designed to handle 240 characters a second.

(2) Tape readers, designed to operate at speeds of up to 60 characters a second.

(3) Output units for use with large digital computers. Included are a number of automatic and remote-controlled tabulators, designed to present computed data in final report form.

Other products include coded keyboards, a comparator punch to provide convenient and completely verified recording of data in punched paper tape, and computer components.

The Standard Register Co.
Albany and Campbell Sts., Dayton, Ohio

Standard Register, while not actually a manufacturer of equipment for integrated data processing, has been active in the designing of systems and forms to be used with such equipment.

The company has recently established a workshop for the designing and testing of forms and systems. Interested companies may use the facilities of this workshop without charge.

The workshop contains a variety of IDP equipment for use in the tests. Included are the latest models from a wide variety of manufacturers. Among the machines are typewriters, teletypewriters, teleprinters, calculators, tape-to-card machines, and other tape producing devices.

Technitrol Engineering Co.
2751 N. Fourth St., Philadelphia

Technitrol manufactures digital computer "building blocks," from which data processing equipment can be assembled on a tailor-made basis. These blocks use the common language of a digital pulse code, binary in nature.

An installation created by means of these basic units can later be expanded as required. The modular principle has also been extended to associated equipment, such as power supply components, air conditioning, and cabinets.

The individual units are readily available on a purchase basis. The company estimates that a general purpose digital computer comparable in size to the well-known "giant brains" can be assembled from the basic units for approximately $500,000.

Telecomputing Corp.
133 E. Santa Anita Ave., Burbank, Calif.

Telecomputing's latest equipment for integrated data processing is its Point O' Sale Recorder, which is used to create a punched tape record of sales information at the place and time of the sale. (*See illustration, page* 49.)

This recorder consists of three units:

(1) A tag reader. Pre-punched tags, containing such data as size, price, style number, etc., are used on the merchandise. At the time of sale, the tag is detached and fed into the tag reader, which reads the punched information and transmits it to a tape perforating unit.

(2) A keyboard unit, which may be used to enter supplementary information, such as the date, salesman's number, discounts, refunds, etc. This information, like that from the tag reader, is transmitted automatically to the tape perforator. The keyboard unit also prints a multi-part tape which provides a customer's receipt.

(3) A tape perforator, which, on receipt of information from the tag reader and the keyboard, punches a paper tape containing all the information entered in the other two units. The tape then serves as a source of information for subsequent processing. It may be fed into a tape-to-card converter, or used directly, as required.

These units serve the function of a cash register, at the same time producing a record which need not be further transcribed. Current models read Kimball tags; in addition, subsequent models will read Dennison tags.

The company also produces tape-to-card converters and is in the process of developing an inventory computer and a more elaborate computer for management use. Printing equipment and other accessories are also planned.

Teletype Corp.
1400 Wrightwood Ave., Chicago

Teletype's activities in IDP are largely concerned with the transmission of data from one station to another.

Most of the basic equipment is designed to work with 5-level standard telegraph code; 6-level and 7-level code equipment, however, is also offered.

Among the company's products are the following:

(1) Tape readers (Teletype Tape Transmitter Distributors), which read and transmit data from punched paper tape at a rate of 100 words a minute. (*See illustration, page* 49.)

(2) Tape punches or reproducers (Teletype Tape Reperforators), for receiving transmitted messages and creating a punched tape corresponding to the original.

(3) Tape perforators, for the keyboard preparation of messages in punched tape form.

(4) Teletype Model 19 Set, which includes punched tape, page, and transmission facilities.

Other equipment includes Teletype Page Printers, tape printers, "Torntape" message relay equipment, and equipment for fully automatic telegraph relay centers.

Using various of these units, forms can be typed and reproduced simultaneously at one or more remote points, which may be thousands of miles away; punched tape information can be sent over great distances; data from a num-

Smead's Files are rugged and built to carry the load

Ask your stationer to show you the modern filing containers made in the new leather-like wear resistant material . . . created and fabricated by us . . . or write for a free sample of this new long-wearing finish.

THE SMEAD MANUFACTURING CO., INC.
HASTINGS, MINNESOTA • LOGAN, OHIO

New uses for punch cards!

You may not want to paper your walls with punch cards, but it's getting to the point these days where you can use 'em for practically everything else. The new Cummins Carditioner now makes it feasible to put time clock cards, payroll checks, dividend checks, money orders, proxies, bonds—a whole host of things—on punch cards.

Heretofore, it was impracticable to use punch cards in many instances because of the cost and bother resulting from damaged cards. Rumpled edges, creases, staples, paper clips, cellophane tape—all caused no end of trouble, jammed sorting machines, required costly, time-wasting hand sorting.

But the new Cummins Carditioner puts an end to all this. It "irons out" rumpled punch cards, restoring them to usable condition. And it rejects those with foreign objects attached—all at a rate of 275 cards per minute! It virtually eliminates hand sorting, does away with any chance for human error, gets jobs done faster, better.

For full information on this amazing new machine that makes punch cards practicable, mail coupon below.

Cummins Carditioner restores imperfect punch cards to usable condition. Permits use of modern, efficient tabulating equipment.

IN BUSINESS AND BANKS ● SINCE 1887

Cummins

Cummins Business Machines sales and service offices in principal cities

CUMMINS BUSINESS MACHINES
Division of Cummins-Chicago Corp.
Dept. OM-25, 4740 N. Ravenswood Ave., Chicago 40, Ill.
Please send me full information on Cummins Carditioners.

Name .....

Name of Business .....

Address of Business .....

City ..... State .....

ber of sources can be integrated in a single tape or form; and data may be disseminated selectively from a single source.

Teletype equipment is offered on a purchase basis, with about six months required for delivery. It may also be rented from telephone and wire companies, which install and service it.

Underwood Corp.
1 Park Ave., New York

Underwood's Punched Card Division is offering two machines designed to make the whole Samas line of punched card equipment available for use in integrated data processing systems:

(1) The Underwood Samas Card-to-Tape Punch, which reads 40-column Samas cards and punches the information into 5-channel paper tape. This machine can process 550 fully punched cards per hour. (*See page* 51.)

(2) The Underwood Samas Tape-to-Card Punch, which converts punched tape information into 40-column cards, also at a rate of 550 per hour.

Each machine stands on a base measuring 3 ft., 8 in., by 1 ft., 4 in. They weigh between 500 and 600 lbs.

Both machines are available on either a rental or purchase basis, as is all Underwood Samas equipment. Delivery is within from 60 to 90 days.

Samas punched card equipment makes use of a card which is smaller than conventional cards. Forty-column Samas cards measure 2 by 4 11/16 in. Twenty-one-column cards are also used. The line includes automatic key punches, automatic verifiers, reproducers, interpreters, interpolators, sorters, tabulators, summary punches, and the "Emp" electronic multiplying punch.

The company is also introducing point-of-sale ("Tab-Tag") systems for retail accounting. Samas cards, punched to include basic sales information, can be used as tags for attachment to merchandise; the stub then provides necessary accounting data in pre-punched form.

Wendon Office Equipment Mfg. Co.
17 Irving Ave., Stamford, Conn.

This company is now offering a small, completely portable tape perforator called the Tapecorder. (*See illustration, page* 55.

This unit is 6 in. wide, 8 in. deep,

"The Thundering Herd"

Keep the coffee-break in your control

Stampede on the 25th floor! It's a fact that in many office buildings, elevator traffic reaches its peak at 10 A.M., the time for the "coffee-break". Rudd-Melikian's Kwik-Kafé system puts an end to this widespread loss of time and efficiency.

Employees take their "coffee-break" right in the office or plant, without leaving their work area, and lost time is cut to the minimum.

Rudd-Melikian, Inc. is the leader in the field of "coffee-break" control, installing and servicing dependable dispensing machines that supply delicious Kwik-Kafé coffee and leading soft drinks *at no cost to management.*

There is a Rudd-Melikian dealer in most principal cities. Contact him, or write direct to us.

You don't have complete control unless you have Kwik-Kafé.

Rudd-Melikian, Inc.,
1949 N. Howard St., Phila. 22, Pa.
Gentlemen:

☐ Please show me how to control the "coffee-break" with R-M dispensers. Booklet OM 1.

Name..... Firm.....

Street.....

City..... Zone... State.....

Kwik Kafé®

RUDD-MELIKIAN, INC.

CREATORS OF AN INDUSTRY

Now **R.C.Allen** VisOmatic

CARBON RIBBON TYPEWRITER

for executive correspondence . . . only $195.00

For only a few dollars more than ordinary standard typewriters, you can own the new VisOmatic Carbon Ribbon, the finest typewriter you could buy. This is an example of the brilliant clarity and sharp letter impressions produced on this superb new machine having Imperial Elite Type.

For executive correspondence, you have a choice of type faces; visible, automatic margins; plus the advantages of low cost carbon ribbon typing.

The VCR's sharp, uniformly black letters make it ideal for reproduction work too. The carbon ribbon is instantly interchangeable with a cloth ribbon. It's the easiest operating, most versatile machine you can buy, and it's built to last a lifetime . . . yet, it's the only carbon ribbon typewriter at this low "standard typewriter" price of $195.00.

R. C. Allen dealers give the biggest possible allowances on old machines . . . it may cost less than you think to have new VCRs. Write us for complete information and name of nearest dealer or consult your telephone directory.

Model 711 CR

R.C.Allen Business Machines, Inc.

686 Front Avenue, N.W., Grand Rapids, Michigan

and 6 in. high. It is designed to provide a means of punching data into 5-, 6-, or 7-channel paper tape at the point of origin.

The keyboard is numeric, with 4 special symbol keys. However, it is possible to use the machine for recording alphabetic information.

The Tapecorder is being made in both mechanical and electrical models. The electrical version will operate from any circuit between 8V and 120V. A subsequent model is expected to be capable of operation from a cigarette lighter circuit in an automobile or truck, to permit use by salesmen, etc.

The company expects to market this model, beginning in February, at a price well under $500.

The Western Union Telegraph Co.
60 Hudson St., New York

Western Union offers an extensive variety of equipment for use in communications. Among the types of equipment available are:

(1) Type 19 sets, which originate and transmit information in the form of five-channel punched paper tape.

(2) Printer perforators, which receive information and convert it to punched paper tape.

(3) Teleprinters, which produce hard copy in either printed page or printed tape form.

(4) Facsimile equipment, which reproduces copies of printed information.

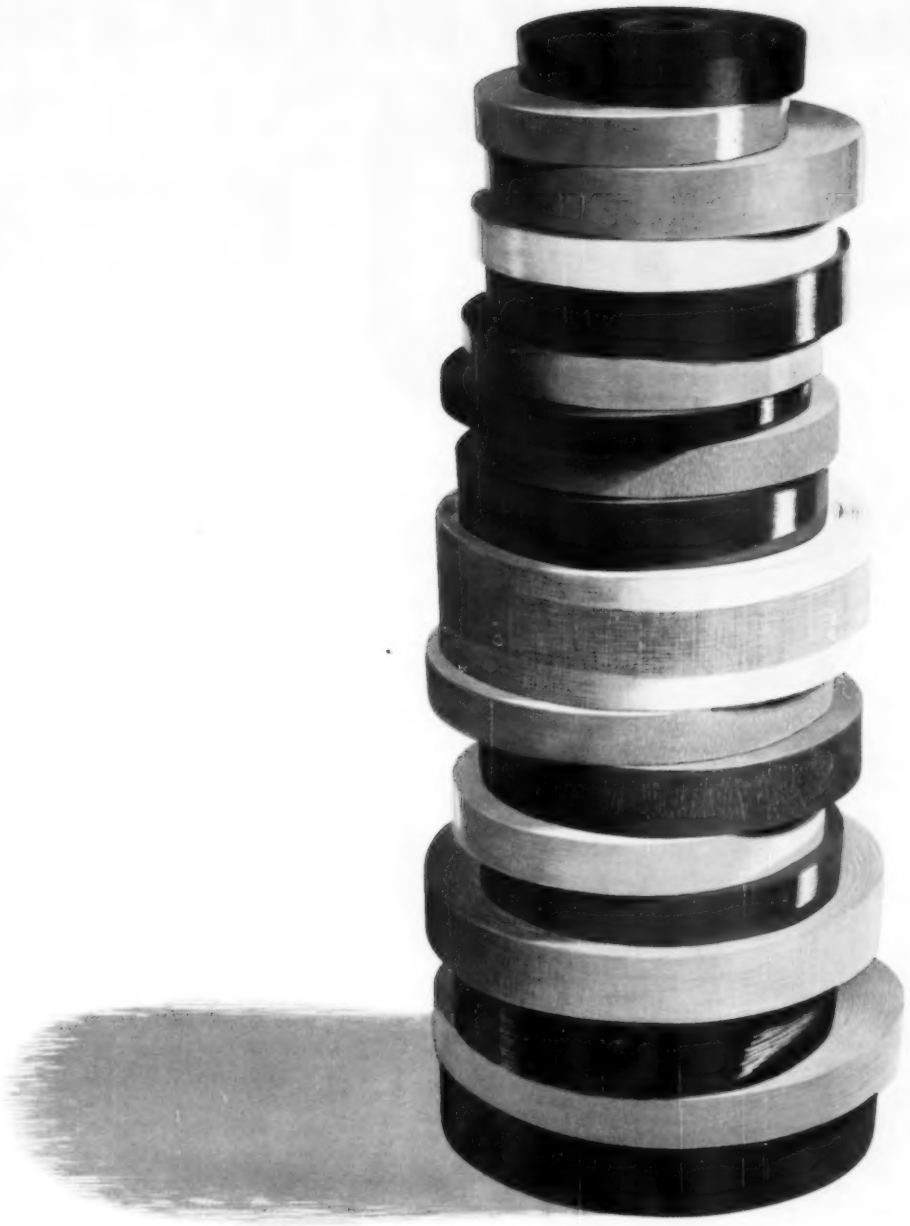
(5) Reperforator switching equipment, which uses punched paper tape for routing messages to their proper destinations within a communications network.

(6) The circuits themselves, which, because of their extensive nation-wide coverage, make possible the linking of IDP equipment in all parts of the country.

Western Union equipment is available on a rental basis only.

In addition to providing equipment, the company has been giving considerable study to the possible uses of transmitting equipment in integrated data processing. Research involves both equipment and procedures.

Among the items being developed are a tape reader and transmitter which can automatically search a message tape for information by which to classify the message. This development will make it possible to choose the correct



whatever the job . . .

SELF-STICKING

PERMACEL® TAPES

In our complete line, there's a self-sticking tape for every job . . . write Permacel Tape Corporation, New Brunswick, N. J.

No Doubt About It!

"The dictionary habit" increases office accuracy, cuts costs

The success of your business may well be affected by the accuracy of your correspondence. No doubt about it, poorly worded correspondence and inaccurate facts and figures have ruined many business transactions. That is one reason why it will pay you to equip every executive, stenographer, and secretary with an individual copy of Webster's New Collegiate Dictionary and to equip your office or departments with at least one copy of Webster's New International Dictionary, Second Edition.

Assure accurate correspondence

When you place these up-to-date reference books at the finger tips of your personnel, you minimize the human temptation to guess, and your business gains the prestige of correctly spelled, precisely written correspondence with the added assurance of accuracy.

Increase office efficiency

You increase office *efficiency*, too. Stenographers and secretaries without a desk copy of Webster's New Collegiate waste valuable time tracking down the correct spelling, proper division, or standard abbreviation of a word. Executives in an office not equipped with Webster's New International Dictionary, Second Edition, must often search through numerous special reference books to find information that would be at their finger tips with this "great question answerer."

For desk use

Webster's New Collegiate assures correct spelling, proper word division, precise meanings, accepted abbreviations, preferred pronunciations, accurate word usage, and *sound facts* about persons, places, weights, measures, monetary units. This up-to-date "business handbook" has 1,196 pages, 125,000 entries, and costs only $5.00 unindexed, $6.00 indexed. Even less for ten or more.

For general reference

Webster's New International Dictionary, Second Edition, is an unimpeachable volume of 600,000 entries, thousands of encyclopedic articles, 12,000 illustrated terms, magnificent color plates, biographical and geographical sections. It is "the Supreme Authority" of the nation's courts, universities, and the Government Printing Office. It is equivalent in type matter to an 18-volume encyclopedia—truly the greatest value in book form in the realm of knowledge. Yet it costs only $35. A handsome table specially designed to hold the book at a convenient angle is available at $29.50.

Write G. & C. Merriam Company, Dept. OM-1, Springfield 2, Mass., to learn how these books can save you time and money.

CAUTION: Merriam-Webster dictionaries are directly descended from the original work of Noah Webster, America's greatest lexicographer. They are kept constantly up to date by the famed *permanent* Merriam-Webster editorial staff. Insist on *Merriam*-Webster — the finest dictionaries with which you can equip your office — at book, department, or stationery stores.

This office saves $2600 per year

In an office employing 25 stenographers, it was found that each had to confirm the correct spelling or usage of four words per day. Approximately five minutes are lost each time in checking either a dictionary located somewhere else in the office or through interrupting a fellow worker.

At the average payroll rate of $1.25 per hour, the 41½ hours per week of lost time cost approximately $2600 per year—more than 17 times the cost of supplying each stenographer with her own copy of Webster's New Collegiate Dictionary!

How much are you losing by not having a Webster's New Collegiate on every desk? (Remember: you get better letters, too.) Call your office supply dealer today! Get the best. *Insist on genuine Merriam-Webster dictionaries.*

A Merriam-Webster

REG. U.S. PAT. OFF.

channel to which the message should be directed; the message will then be automatically re-sent to that channel.

Other Companies

In addition to the companies listed above, a number of other organizations have been devoting time and effort to research and developments which have, or will have, a bearing on integrated data processing. Some of these are manufacturers of equipment which is used primarily for engineering work but which may later be modified for office installations. Others are manufacturers of components, too technical in nature to describe in this section, for use in IDP equipment. A few others, probably, are making equipment which deserves to be treated in this survey, but in these cases sufficient information on their work was not available for inclusion in this survey.

Among these companies are:

Ampex Corp., 934 *Charter St., Redwood City, Calif.*, manufacturer of magnetic memory devices.

Bendix Computer Div., Bendix Aviation Corp., 5630 *Arbor Vitae St., Los Angeles*, manufacturer of a general purpose digital computer and related equipment.

The Davies Laboratories, Inc., 4705 *Queensbury Rd., Riverdale, Md.*, manufacturer of magnetic tape recording and other equipment.

Electronic Associates, Inc., Princeton Computation Center, Long Branch, N. J.

Intelligent Machines Research Corp., 1101 *Lee Highway, Arlington, Va.*

The Jacobs Instrument Co., Bethesda 14, *Md.*, manufacturer of an electronic digital computer.

Litton Industries, 336 *N. Foothill Rd., Beverly Hills, Calif.*

W. S. Macdonald Co., Inc., 33 *University Rd., Cambridge, Mass.*

Potter Instrument Co., Inc., 115 *Cutter Mill Rd., Great Neck, N. Y.*

Radio Corporation of America, Camden, N. J.

Shepard Laboratories, 480 *Morris Ave., Summit, N. J.*

Teleregister Corp., 157 *Chambers St., New York* 7, *N. Y.*, manufacturer of facsimile and other equipment.

Visirecord, Inc., 54 *Railroad Ave., Copiague, L. I., N. Y.*

How JUSTOWRITER Saves up to 80% ON TYPE COMPOSITION COSTS

RECORDER produces visible copy like this and by-product punched tape in one type face.

Save 20 to 80% of your composition costs with the Justowriter. Your typist can produce justified proofs or direct image plates automatically from punched tape in a matter of minutes.

One typing on the Justowriter Recorder produces a visible copy and a punched tape. This tape then operates the Justowriter Reproducer to set sharp justified (even margins) reproduction proofs or direct image plates automatically at 100 words per minute. Users report savings on all types of composition: manuals, books, literature, house organs, newspapers and direct mail pieces.

RECORDER

REPRODUCER produces justified reproduction proof like this from punched tape in another type face.

Save 20 to 80% of your composition costs with the Justowriter. Your typist can produce justified proofs or direct image plates automatically from punched tape in a matter of minutes.

One typing on the Justowriter Recorder produces a visible copy and a punched tape. This tape then operates the Justowriter Reproducer to set sharp justified (even margins) reproduction proofs or direct image plates automatically at 100 words per minute. Users report savings on all types of composition: manuals, books, literature, house organs, newspapers and direct mail pieces.

REPRODUCER

Eleven different type faces are available in sizes from 8 to 14 point. All Justowriter type styles go well together when mixed for variety.

Changes, revisions, corrections and alterations are easily made on the Justowriter which will punch, read, revise or duplicate tape.

COMMERCIAL CONTROLS CORPORATION

All body copy for this advertisement was set on the Justowriter.

MAIL COUPON NOW

COMMERCIAL CONTROLS CORPORATION
Dept. OM-25, 1 Leighton Ave., Rochester 2, New York

- ☐ Send examples of savings with Justowriter
- ☐ Tell me where I can see a Justowriter demonstration.
- ☐ Send literature and samples of Justowriter composition.
- ☐ Have your Representative contact me on _____

Name _____ Title _____

Company _____

City _____ Zone ____ State _____

Commercial Controls maintains sales and service offices in principal cities—listed in classified telephone directory.

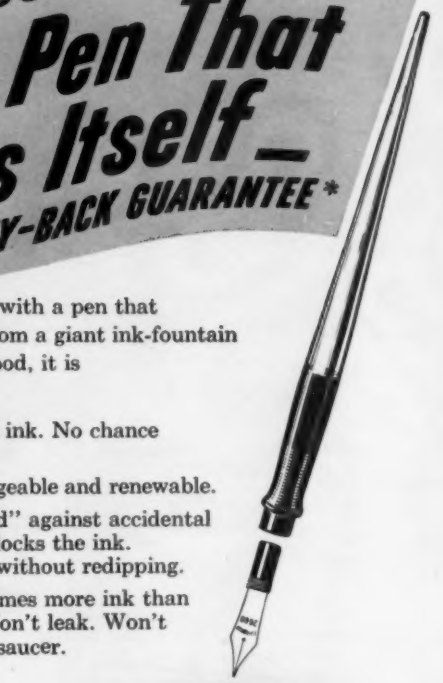
ESTERBROOK DESK SET WITH

The Pen That Fills Itself—

30-DAY MONEY-BACK GUARANTEE*

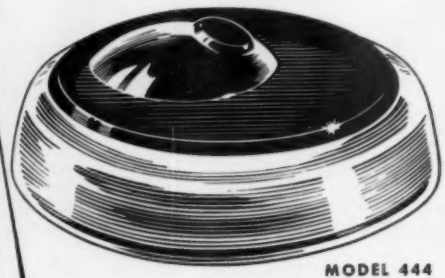
A truly amazing desk set with a pen that automatically fills itself from a giant ink-fountain in the base. And it's so good, it is *guaranteed to please you!*

- Finger grip never touches ink. No chance for ink to touch you.
- Point instantly interchangeable and renewable.
- Fountain-base "ink-locked" against accidental spillage. Only the pen unlocks the ink. Writes full page or more without redipping.
- Fountain-base holds 40 times more ink than ordinary fountain pen. Won't leak. Won't flood. Easy to clean as a saucer.



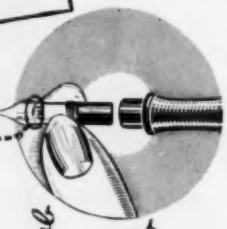
*30-DAY MONEY BACK TRIAL OFFER

Your regular stationer will be glad to let you try one of these fine Self-Filling Desk Pens on your own desk for 30 days with the understanding you can return it for a full refund if you are not completely satisfied with it.



MODEL 444

Choose the right point for the way you write... by number ----



TO SELECT OR REPLACE ... HERE'S ALL YOU DO
MORE THAN 30 POINT STYLES

2668 General writing
2550 Bookkeeping
9314M Medium stub
2442 Fine Stub
9550 Extra Fine
9668 General writing
2284 Signature Stub

30 NUMBERED POINTS—FOR EVERY WRITING JOB

Esterbrook® DESK PEN SETS

THE ESTERBROOK PEN COMPANY, CAMDEN 1, NEW JERSEY

COPYRIGHT 1955 THE ESTERBROOK PEN COMPANY

The Esterbrook Pen Company of Canada, Ltd.
92 Fleet Street, East; Toronto, Ontario

Automation—

(*From page* 44)

tional Association of Manufacturers published a report on January 16, titled "Calling All Jobs, An Introduction to the Automatic Machine Age," designed to end fears of "the burgeoning machine age, which is the worker's best friend." Earlier in the month two speakers at the annual meeting of the Society of Automotive Engineers, meeting in Detroit, also argued that automation in industry may be expected to produce new and better jobs rather than unemployment.

The NAM report argues that automation is merely a continuation of the constant refinement of productive machinery, and that, as such, it will increase the number of job openings.

Methods planning—

(*From page* 19)

the best applicant for the demands of that particular job. Separating the large volume of simple, repetitive tasks from the much smaller volume of complex jobs automatically will reduce the problems involved in hiring and training the clerical personnel needed in almost any large office.

This poses the question: how is a personnel selection program to be set up? Some of the criteria that should be incorporated in an effective program are shown in Figure 2.

Clerical measurement controls lie in the personnel area. But they serve as an important methods tool, too, because they highlight the weak spots in the current system which should be eliminated first in the gradual changeover to a new system. Simple methods of measuring clerical output within work centers or unit groups can be developed by comparing actual output with average standards. These measurements, expressed as percentage deviations from standard, will give departmental executives and top management a rapid and reliable comparison of production for various groups within the company, and will thus show which groups are particular problem areas.

A procedure we have found effective for measuring employee productivity is:

1. Select work centers.
2. List the tasks performed in each work center.
3. Select equitable basic media and

(*To page* 70)

THE FURNITURE OF DISTINCTION

CORNELIUS M. HERZ
Production Manager

EARL HANSON
Sales Representative

BILL KEENAN
Sales Representative

G. MAX KEATING
Sales Representative

PHILO LEONARD
Sales Representative

HUGH T. MORGAN
Sales Representative

PAT PATTERSON
Sales Representative

MRS. ELLIS RYAN
Sales Representative

PAT WHITESIDES
Sales Representative

MEET THE TEAM who brings you the exclusive EXECUTIVE line — the finest in distinctive office furniture . . . first choice with discriminating buyers from coast-to-coast. Write for the new EXECUTIVE Furniture catalog . . . and . . . inquiries welcomed for custom made furniture.

EXECUTIVE FURNITURE COMPANY
WICHITA FALLS TEXAS

EXECUTIVE
FURNITURE CO.

2800 VIRGINIA STREET • WICHITA FALLS, TEXAS

establish a procedure for recording the production count of each medium.

4. Establish a group report in each department for the daily distribution of the clerical hours spent on each task.

5. Establish work standards expressed in standard hours. These standards can be set by analysis and estimate, in cooperation with each department head.

6. Formulate variable and/or fixed budgets for activity on which no direct production media can be established.

7. Extend unit process by standards to obtain standard hours earned. To these, add the standard budget hours, thereby obtaining the total standard hours earned for the work center or department, as the case may be. The total standard hours, divided by the actual hours worked, will result in the productivity performance per cent of each respective work center or department. The productivity performance of an entire office can be obtained by dividing the total earned hours by the total actual hours worked by the entire office group. An improvement in office productivity will be reflected if more hours are earned with the same actual hours, or the same volume of work is accomplished with fewer hours.

8. Trends of accomplishment can be reviewed and plans made for improvement at weekly meetings which should be attended by representatives of management and department heads.

A general review of clerical output should also include analysis of the supervision patterns within each department. This will often show that supervisory levels are overstaffed in terms of the new system, as a result of varying work loads before systems revisions, and requirements no longer in effect.

Determination of each department's supervisory requirements under the revised system should disregard precedent and analyze supervisory needs in terms of the type and volume of work processed, and the degree to which purely manual operations are to be taken over by machines.

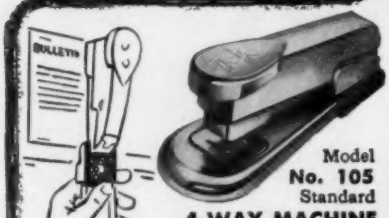
Clerical privileges should also be reviewed in each department. The extent of the privileges granted employees is a matter of company policy, but it is imperative for good working conditions that the privileges be fairly standard through all departments.

These are the techniques of revitalizing the methods function within a com-

(*To page* 72)

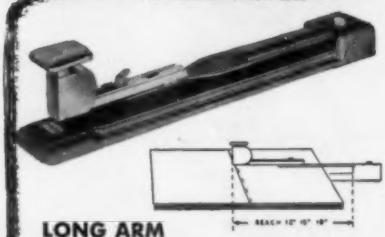
ARROW GIVES YOU ALL-AROUND STAPLING PERFORMANCE IN THE OFFICE

Model **No. 202** Standard
HEAVY DUTY PRODUCTION STAPLER
Staples up to 40 sheets of 16 lb. bond.



Model **No. 105** Standard
4-WAY MACHINE
Stapler, Tacker, Plier, Temporary-Permanent Stitch.

Model **No. P-98**
PLIER TYPE HAND STAPLER
Compact, portable for stapling papers at files and other hard-to-reach places.



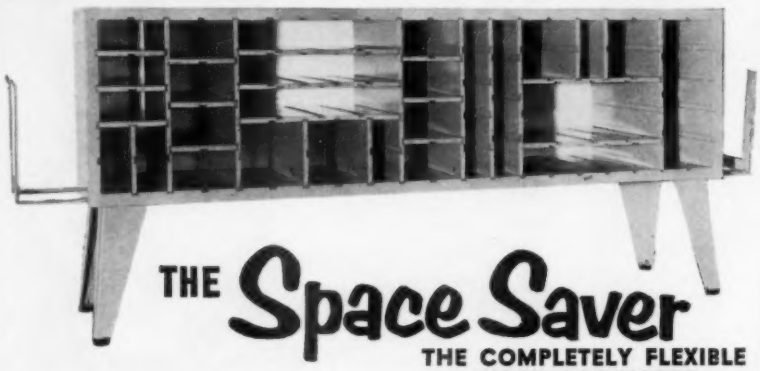
LONG ARM
Accessible to areas which ordinary Staplers cannot reach.
Loads 210 Standard Staples.

FILL IN COUPON AND MAIL

Arrow Fastener Company, Inc., Dept. OM
One Junius Street, Brooklyn 12, N. Y.

Please send literature on staplers checked below:
No. 202 ☐ No. 105 ☐ No. P-98 ☐ Long Arm ☐

NAME.....
COMPANY.....
ADDRESS.....
CITY.....ZONE.....STATE.....



THE **Space Saver**

THE COMPLETELY FLEXIBLE WORK ORGANIZER
ALL STEEL CONSTRUCTION

Provides more work surface in less area. Gets all materials and supplies off the desk top, but not tucked away in inconvenient drawers. Provides any table with equal storage capacity of a 6 or 7 drawer desk.
Dividers are available in two sizes, which provide arrangements to meet all needs.
Expansion end brackets available for files and oversize books or documents. The plexiglass back can be removed for use between two desks. Can be provided with or without legs.

List prices will be sent upon request.
For further information write:

WENDON OFFICE EQUIPMENT MFG. CO.
17 Irving Avenue **Stamford, Conn.**

Yes, *Precision-made* Accounting Machine Forms are an important team mate to your precision made Accounting Machines. To obtain maximum accounting efficiency you must use quality forms . . . forms that are carefully produced to fulfill your individual requirements, forms that register perfectly, and forms that are printed on the proper paper stock to withstand handling and yet give perfectly legible copies.

Team-up Reynolds & Reynolds *Precision-made* Accounting Machine Forms with your Accounting Machine for greatest accounting efficiency.

WRITE TODAY FOR COMPLETE INFORMATION!

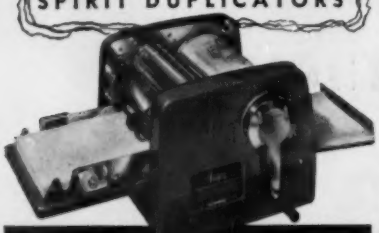
THE REYNOLDS & REYNOLDS COMPANY

BUSINESS FORMS SINCE 1866

PLANTS: DAYTON, CELINA, OHIO; DALLAS, TEXAS; LOS ANGELES, CALIF.

OFFICES IN MOST PRINCIPAL CITIES

Heyer CONQUEROR
SPIRIT DUPLICATORS



PRINT hundreds of FAST, CLEAN PERFECT COPIES

• IN MINUTES
• IN 1 to 5 COLORS

Now, you can make 120 or more copies per minute of anything up to 9 x 14 inches in size — typed, written, drawn, traced or ruled — in 1 to 5 colors. All in one easy, inexpensive operation. The Heyer Conquerors, Manual and Electrically Operated, are the duplicators with ALL the features . . . priced much lower than comparable machines.

Model 70-Hand Operated—$195 (plus tax)
Model 76-Automatic Electric—$325 (plus tax)

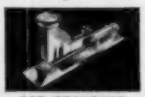
Write today for FREE descriptive literature and name of your nearest dealer—to:

THE HEYER CORPORATION
1822 S. Kostner Ave., Chicago 23, Ill.

AN *ACE* STAPLER..

Millions Now in Daily Use!

Don't take chances on ordinary staplers. The ACE PILOT has proven its superiority with *millions* of satisfied users the world over. When you ask for an ACE, you get *extra years* of *never-failing* stapling service. Models from $2.40 up. Ask for the ACE Staple Remover and ACE precision-made Staples, too.


ACE STANDARD

ACELINER

SOLD THRU LEADING STATIONERS

ACE
The WORLD'S FINEST — Stapling Machines for Every Purse and Purpose — The WORLD'S FINEST
ACE FASTENER CORPORATION
3415 North Ashland Avenue, Chicago 13

pany. They should be incorporated in a broad program involving all main office divisions as well as the clerical functions in branch operations in order to achieve the best overall results.

Within this program, a detailed schedule of specific recommendations, including an evaluation of the savings and costs involved for each recommendation, should be planned, and presented in written form to top management. With such a step-by-step outline to guide it, management can make the decision to proceed on changes deemed advisable, and save the operating division responsible for putting the new system into effect from asking detailed approval for each change.

When a program is developed in this way, with installation and sequence of methods changes rigidly scheduled, the returns in most instances can pay for all conversion costs within the first year of full operation.

(*To be concluded in March*)

New tax—

(*From page 29*)

ciation, further assumptions are necessary. For instance, with five year life property, the taxpayer must believe tax rates will rise considerably about two years later and continue at the high rates for at least three years, or must contemplate substantially higher expansion some two years off, materially increasing the cost of money used to pay the deferred taxes in later years.

These are only a few of many combinations that could result in an unfavorable overall result from adopting rapid depreciation. But such instances should be greatly in the minority.

Almost all taxpayers eligible for rapid depreciation should gain by adopting it. With high expansion of short lived property, the financial help will be considerable, and may sometimes be decisive. With longer life, economic gains will be paramount and prove of material benefit. Most of the benefit of financial assistance can be quickly realized. Economic gains, while more tangible, are harder to predict with accuracy, since they may often accrue over extended periods, when unpredictable factors may affect the outcome. But while economic gain cannot be guaranteed, it is a strong probability in most cases.

Taxpayers who avail themselves of

(*To page 74*)

Samsonite

folding chairs are strongest...last longest!

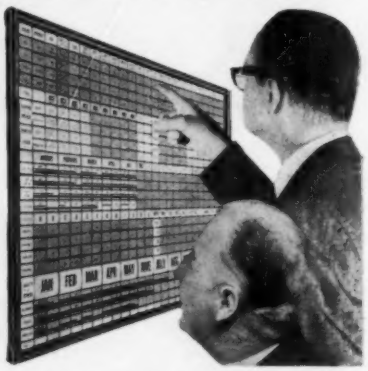
Samsonite folding furniture is smart, sturdy, and wonderfully comfortable. It lasts *longest* — saves money over the years. Group-seating experts choose Samsonite *first*.

Look for this seal on every chair. Only genuine Samsonite has it.

Write us or ask your distributor for *free* booklet: "How to Save Money on Public Seating".

SHWAYDER BROS., INC., *Public Seating Division, Dept. U7, Detroit 29, Mich.* Also makers of famous Samsonite Luggage . . . Card Tables and Chairs for the Home . . . Classroom Furniture

You Get Things Done With Boardmaster Visual Control



☆ Gives Graphic Picture of Your Operations—Spotlighted by Color
☆ Facts at a glance—Saves Time, Saves Money, Prevents Errors
☆ Simple to operate—Type or Write on Cards, Snap in Grooves
☆ Ideal for Production, Traffic, Inventory, Scheduling, Sales, Etc.
☆ Made of Metal. Compact and Attractive. Over 50,000 in Use

Full Price $49.50 with cards

FREE 24-Page Booklet No. G-400 Without Obligation

Write for Your Copy Today

GRAPHIC SYSTEMS
55 West 42nd St. • New York 36, N. Y.

it's a pleasure... it's a Scribe

It's a pleasure . . .
When you dictate with the new EXECUTIVE SCRIBE.

The EXECUTIVE SCRIBE is the dictation system of the future . . . years ahead of competition.

The executive desk sets shown here are the only pieces of equipment that you will ever need in your office. In addition to the alternatives below, there is an executive desk station available which eliminates the necessity of holding anything in your hand. You can work with both hands while you dictate.

The EXECUTIVE SCRIBE is a flexible, economical multi-station dictation system that is so simple to use . . . IT'S A PLEASURE. All functions of the recording unit are remote controlled with fingertip ease.

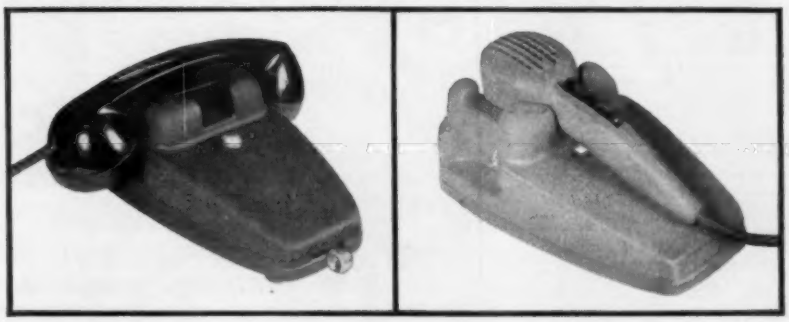
By far the most advanced dictation system ever devised.

The EXECUTIVE SCRIBE has a range of accessories designed to satisfy the most discriminating executive. Whether you choose the unit with the miracle mike, the telephone hand set, or the executive station, we know that you will agree that Scribe is years ahead.

Try a Scribe without obligation.

SCRIBE CORPORATION, 5022 WEST MADISON, CHICAGO 44, ILL.

SALES AND SERVICE FROM COAST TO COAST



I NEED THESE COPIES TONIGHT, MISS JONES

With a Peerless DRI-STAT photocopier, other executives in several different places can put this information to work immediately. And Miss Jones won't be late for her date, nor the boss stuck for overtime.

Incoming rush orders, complicated specifications, urgent "trouble" reports from the field . . . whatever the original, DRI-STAT will copy it exactly . . . no proof-reading needed . . . in less than a minute, for about 10 cents per page. Originals in colored ink, on opaque paper, printed on both sides . . . DRI-STAT will make clear, sharp black-and-white copies of them all.

Ask your Peerless distributor to show you how DRI-STAT can cut your copying costs and pay for itself, quickly. Call him for a demonstration, or mail the coupon.

PEERLESS
***DRI*-STAT**

PEERLESS PHOTO PRODUCTS, INC.
Shoreham, L. I., New York OM-2

☐ I'd like to see a demonstration of DRI-STAT on my work.

☐ Please send me your free brochure describing DRI-STAT.

NAME.....

TITLE.....

ADDRESS.....

these rights will be doing what Congress and the Administration intend them to do—for the economic good of the nation as well as their own. So taxpayers may be sure of Uncle Sam's blessing in availing themselves of this valuable new right.

It is not feasible to present here detailed discussion of many important aspects of this subject or to include many formulae, tables and charts pertaining thereto. These are contained in a new book by the author, entitled "New Rapid Tax Depreciation — What It Means to You" (of which this article is a condensation), which was recently published by Prentice-Hall, Inc.

Library—

(*From page* 31)

400 for legal periodicals, etc.), but this is generally unnecessary unless there is wide variety, mingled with considerable volume. Books are another matter, however. There should be at least a two-way index, namely: alphabetically by author and by title. A third, alphabetically by subject, is highly desirable.

Here is where the selling utility of the inventory card comes into play. To set up the index by authors, the inventory cards themselves may be used, with the author's name being inserted on the "Index" line. To establish the title index, merely make copies of the cards, adding the title of the book on the "Index" line. If a subject index is needed—and it can be most helpful when a book is wanted in a hurry—the code number becomes all-important. It should be inserted on the "Index" line ahead of the name of the category. Here, unfortunately, is where no hard, fast rule can be laid down, since diversity of types of enterprise causes widely varying types of book concentrations. Codes which are satisfactory for a manufacturer of venetian blinds will be hopelessly inadequate for a fishery. Generalities are only the guideposts along the broad highway, giving scant clue to offshoot paths or trails. However, the following style of coding should fill the needs of a small manufacturer, or Mr. Average of American business:

100—Accounting and statistics
200—Economics, finance, and insurance
300—Engineering and manufacturing
400—Industrial relations

(*To page* 76)

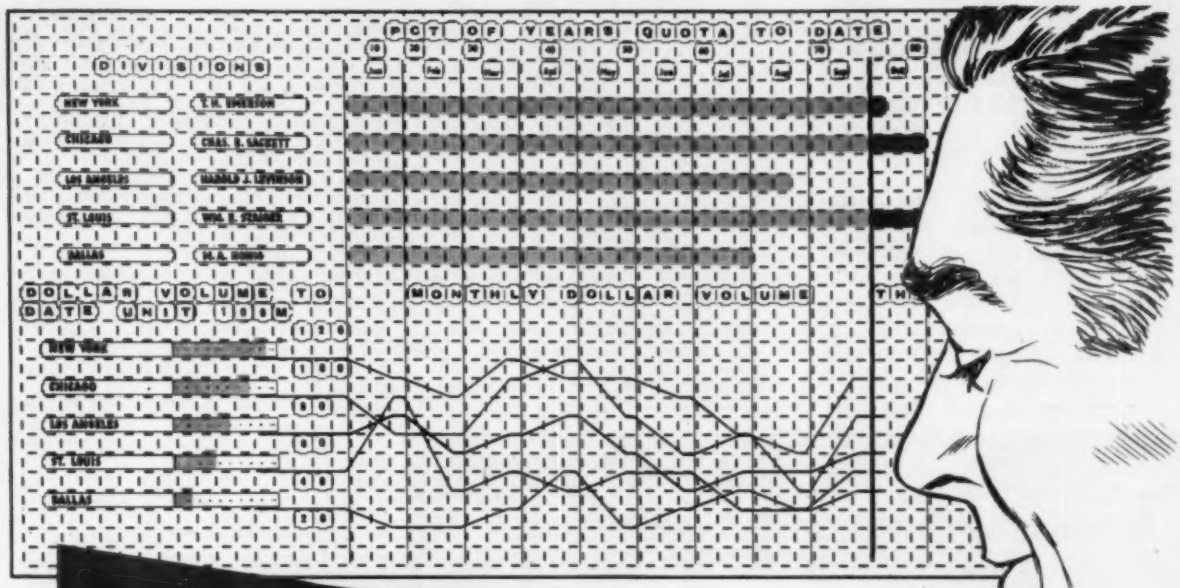
DOUBLES THE CAPACITY
OF ANY TUB FILE NOW IN USE . . .

Swing File

All the flexibility of Tub Files. More clear working surface—larger capacity. Storage takes minimum space, when not in use. File trays "swing" down in front of Clerk at slight pull—"swing" up out of way with gentle lift. Trays are easily removed or inserted in rack. May be adapted to your present file trays.
Provided with working table or can be fastened to rear of any available table. Will double capacity of any tub file now in use.
Available for filing any size cards or documents on end or on side.

For further details write:

WENDON OFFICE EQUIPMENT MFG. CO.
17 Irving Avenue, Stamford, Conn.



Fast Facts —at a glance

VICTOR CONTROLA-CHART

Chart your business progress with the Victor Controla-Chart system. This fast, simple, more efficient system gives you instant visual control over any operation. Check sales vs. quota . . . control inventory . . . production . . . company finances . . . in fact, anything you want — at a glance.

Controla-Chart is the modern way to ascertain facts. You use flexible colored, lettered or numbered celluloid indicators to give you fast, visual control of facts . . . simply, yet more effectively.

Controla-Chart is exclusive with your Victor dealer. See him today; he'll be glad to help you set up a visual control system over all your business operations.

VICTOR SAFE & EQUIPMENT

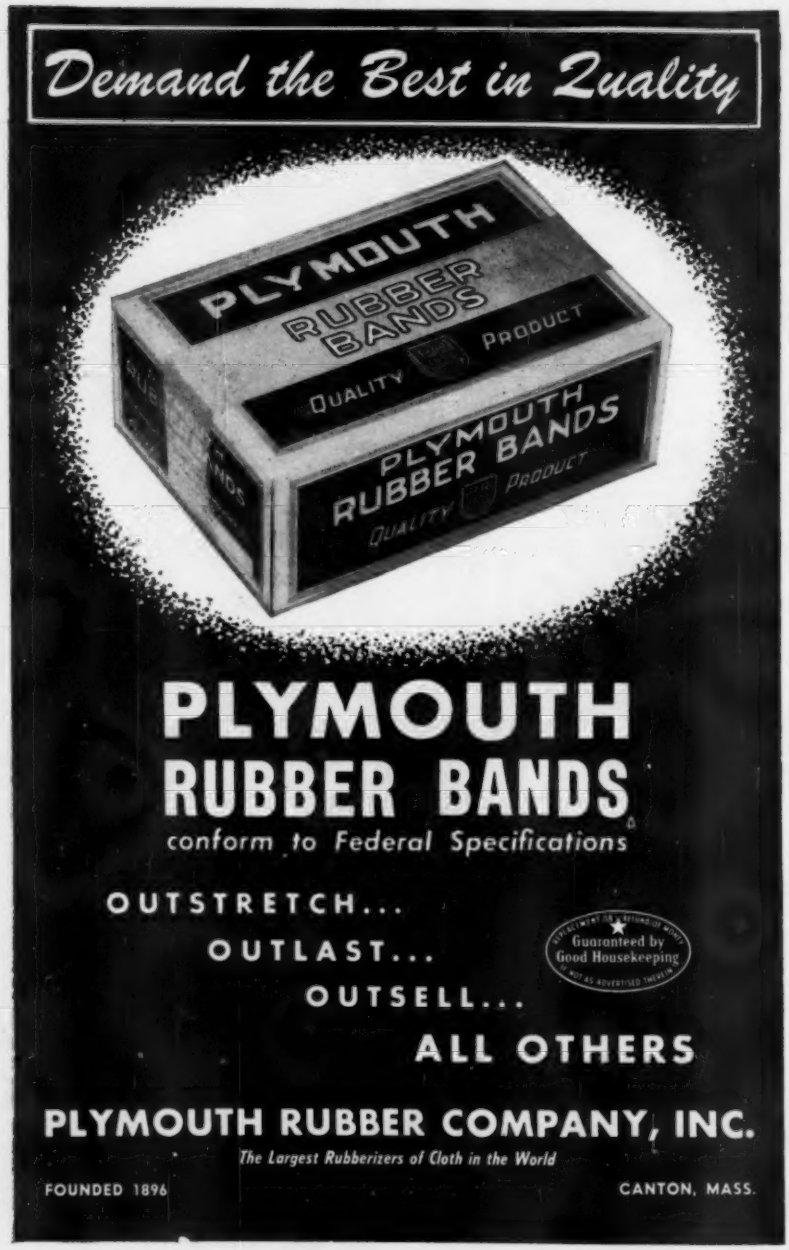
Remington Rand Inc.
DEALER SALES DIVISION
315 FOURTH AVENUE · NEW YORK 10, N. Y.

500—Law
600—Management, including purchasing
700—Marketing and advertising
800—Sciences
900—Miscellaneous.

Individual elements of the foregoing would be subdivisions of the group numbers. Thus, legal encyclopedias would be in group 401 to 410, contracts, texts, and treatises in 411 to 419, etc. Similarly, business cycle books could be styled 201 to 210, or sales management books in 701 to 710. Personal choice is the keynote of the coding breakdown, with arbitrary decisions no mean exception.

The importance of the lowly book or magazine in these dizzy, busy times, even if it is only to cool the ire of a fuming executive, cannot be neglected. In the smaller organization, lacking a full-time librarian, the function of knowing what books the company owns and where they are is logically a function within the realm of the personnel manager. To have a really workable system, there must be inventory, indexing, and central control, regardless of the physical location of the books and periodicals. Any company library plan is not worthwhile unless it answers these questions: (1) do we have the book or periodical? (2) if so, where is it? and (3) a new edition has come out: should we buy it?

The stores of knowledge of the great brains of business, law, and science are contained in the books and magazine articles which have provided the doors to these vaults. A company library supplies the keys to the doors. If it is improperly planned or operated, the probability is strong that the doors will not open by themselves, particularly if the book seeker is in a hurry and the door is locked. There is no substitute for efficiency in the modern age of commerce, and a company library can often be as important as the general ledger or the general purpose lathe.



Sales order—

(*From page* 25)

A detailed analysis was made of the sales department and how sales were obtained; a training program was instituted, sales quotas were redistributed; a real incentive program was installed. Deadwood was either retired or relieved. Sales were forecast and a rigid budget was made for each department; incentives for department heads based on the budget were created.

Not only did all of this result in a reduction in overhead and a steady upward trend in our sales, but it gave all the employees a stimulus that was long overdue. The employees are now bright and alive; the work is getting done faster and there is a new feeling in the whole company. And all of this just from learning how the sales order was processed.

Accountants—

(*From page* 22)

equipment, procedures, people, supplies.

In turn he should determine the requirements of the general foreman, the factory superintendent, and so on up the line.

If we design an accounting system in this way we will then know that all parties concerned are getting the necessary, and only the necessary information for their needs; that they are forwarding the necessary information for management's needs, on time. We will know why each bit of information

is prepared and will not have undue misgivings about the amount of paperwork. We will know that we have the proper staff because it is planned to meet known needs. In these circumstances we can intelligently, fairly, and meaningfully establish realistic attainable schedules. We can set up controls to coordinate records and information reporting so that management will be informed properly and expeditiously.

Only then will we know that our accounting system is performing the service that it should.

Only then will our accounting system be what it should be, a means of communication between the factory and its management.

Photocopying—

(*From page* 27)

vision is 23 photographic copying machines spotted in some 20 different departments throughout the plants in Los Angeles and Downey, Calif. These Apeco Auto-Stats, made by American Photocopy Equipment Co. of Chicago, are continuous copiers and automatic processing units combined into one compact unit.

Located in colorful orange canopied booths so that they may be easily spotted through the plants, various production and material record forms are processed on these machines as the forms travel through the production flow. The forms contain all necessary information as to part or assembly, quantity, description, production status and authorized changes.

Personnel reduced

This method has reduced the number of stock chasers, follow-up men and trouble shooters, with most of the legwork accomplished by the form itself. It has made internal expediting possible, confining it to a single department.

Photocopies are employed basically for "Behind schedule notifications," split orders and tooling orders.

Behind schedule notifications are copies of the shop order reproduced by the *making* department and sent to the *using* department. They indicate the exact status of overdue parts. Because it is an exact copy of the work order prepared in Production Planning, it tells the using department accurately its position in the manufacturing cycle.

Reproducing shop orders for "split" purposes occurs when it becomes expedient to move a partial quantity of parts ahead of the total quantity called for on the original manufacturing order. In the split order function, it is estimated that nearly a million "splits" per year are made in North American production shops. These have been made manually heretofore, requiring an average of 3.4 man minutes per split. With the new system extended to split operations, savings are substantial in time and labor. It takes only about 40 seconds to photocopy a split order card.

It is estimated that from 200 up to 3,000 individual order copies are now made per week within each department, with more than 50,000 per week made throughout the plant—a herculean task if done by hand or slower duplicating methods. Speed of operation and clarity of reproduced copy makes the new method superior from an efficiency standpoint, as well.

The basic flow of work within the department is from the project planning group, through the order preparation cycle to Schedule Control Center, which routes copies of the orders to their proper destinations. Combined with the Tool Order and Kardex Comparison Schedule, which are by-products of the basic flow, this stream of production orders collects the necessary materials and tools and authorizes the work performed by production departments, from the first detail parts to the final complete airplane acceptance.

Duplication machines eliminate the

NOW—THE ADVANTAGES OF HYDRAULIC POWER IN A HANDY 19⅜" PAPER CUTTER!

Introducing the 193 Semi-Hydraulic Power Paper Cutter . . . newest and *smallest power-operated cutter* in the famous Challenge line! Ideal for the office or small plant. Just 19⅜ inches wide . . . yet with all the POWER and PERFORMANCE of many larger, more expensive models!

Hydraulically controlled knife cuts clean and deep. Won't repeat accidently. Works smoothly in harmony with easy-running hand clamp to save time and money. Special features include Challenge's safe and sure two-hand starting device . . . "duplex" measuring tape . . . "positive" back gage . . . and a handsome baked-on "wrinkle" finish which adds to the smart appearance of the cutter.

Ruggedly built . . . moderately priced—you'll find Challenge's 193 Semi-Hydraulic Power Paper Cutter *right* for you. Send for complete details now.

765 - BP

THE CHALLENGE MACHINERY COMPANY
Office, Factories, Show Room
GRAND HAVEN, MICHIGAN

Challenge Owns The Printing Equipment Manufacturing Rights of *Morgans & Wilcox Manufacturing Co.*

DEALERS IN ALL PRINCIPAL CITIES

Challenge
TRADE-MARK ®

CHALLENGE® STYLE 193F SEMI-HYDRAULIC POWER PAPER CUTTER

Combines economy of *compactness* and efficiency of *power* in one model!

Over 50 Years in Service of the Graphic Arts

NOW—STAPLE
Automatically

Staplex CUTS COST 70%
. . . And More!

— TIME-TESTED STAPLEX does the work of 20 "old-fashioned" staplers . . . better . . . quicker . . . more economically! Thousands in use.
— STAPLES AUTOMATICALLY . . . both hands free to feed work . . . no levers, pedals, etc. Plugs in anywhere.
— RELOADS in 2 SECONDS from the front. Standard size staples used.

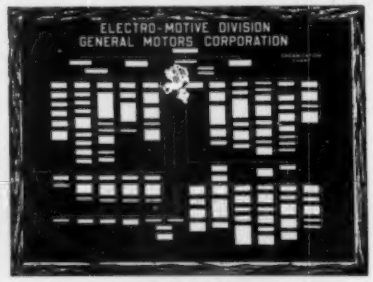
Write for literature

THE *Staplex* COMPANY
776 Fifth Ave., Brooklyn 32, N. Y.

STOP COSTLY RE-DRAFTING OF ORGANIZATION CHARTS

THE
COFFIELD
EVERLASTING
Interchangeable
ORGANIZATION
CHART

EASY TO CHANGE
A typist, a typewriter and typing paper are all you need to keep your chart up to date. It's that simple!



- Sizes to Fit Any Organization Structure
- Eliminates All Costly Drafting
- Photographs for Sharp Prints
- Invaluable as a Visual Training Aid
- All Parts Are Movable and Re-usable
- Solves Your Chart Problem Forever

Write for Free Illustrated Folder with Price Schedule No. OM-2.

MANAGEMENT CONTROL CHARTS CO.
1731 N. WELLS ST. CHICAGO 14, ILL.

necessity of going through separate operations in making negatives and positives. Each copy is always in positive form with the image appearing black-on-white exactly like the original. Even hastily written notations on the original can be reproduced in legible fashion.

The duplicators also double in brass for copying letters, correspondence, documents or reports in the North American offices. There is no limit on the types of papers, documents or originals that can be copied.

To speed routing of processed order forms, hourly messenger pickup service is provided, with a mail messenger girl, equipped with a motor-scooter, replacing many of the order chasers, expediters and troubleshooters.

Chicago seminar—

(*From page* 23)

Mitchell & Co., will carry on the theme by taking as his topic, "Having Learned the Problems, What Can Be Done to Effect Improvements?"

"Appraisal and Development Programs of Organizations" will be the topic for the morning session on Wednesday, March 2, at which two speakers will analyze the subject from the viewpoint of the large company, and the small company. Discussing appraisal and development programs in a large organization will be William Bright, manager, Employee Development Division, Pure Oil Co., Chicago. Philip L. Cochran, assistant to the president, W. A. Alexander & Co., Chicago, will talk on the subject from the point of view of the small company.

The afternoon session on Wednesday will have as its overall theme "Topics of the Hour in Management Relations." Five speakers will talk on specific subjects under this general theme during the meeting. Wilson M. Ranck, Industrial Relations Staff, American Seating Co., Grand Rapids, Mich. will speak on "Communications to Employees"; Dr. Robert M. McMurry, of McMurry, Hamstra & Co., Chicago, will discuss "Why Salary Administration Programs Fail, and What to Do About It."

The third speaker, Helen M. McGrath, office manager and assistant controller, Sears, Roebuck & Co., will talk on "Habits and Conduct in Today's Office," while the last two speakers, Wendell F. Wood, supervisor, Research and Testing, International Harvester

Protect your inactive business records with proper storage. LIBERTY STORAGE BOXES are constructed of highest test corrugated fibre-board. Dust-proof, spill-proof protection. Liberty's storage system assures *fast-finding* of any record. Try LIBERTY BOXES for quality and low cost. 25 stock sizes.
Sold by leading stationers.

Send today for FREE Catalog picturing and describing economical record storage products for every business.

BANKERS BOX COMPANY
720 S. Dearborn Street • Chicago 5, Ill.

Personnel Handbook

● Complete reference to personnel policies and techniques—for supervisors, department heads, office managers, etc. Plans, ideas, authoritative answers to questions on personnel programs, job analysis, merit rating, labor contracts, morale, public relations, etc. 65 *Contributors. 262 ills., 1167 pp.* $10

Other famous **Ronald Handbooks** include:

ACCOUNTANTS' HANDBOOK
Over 90 Contributors. 287 ills., tables. 1505 pp. 3rd Ed. $10

COST ACCOUNTANTS' HANDBOOK
Over 70 Contributors. 556 ills., tables. 1482 pp. $10

FINANCIAL HANDBOOK
65 Contributors, 139 ills., 1289 pp. 3rd Ed. $10

MARKETING HANDBOOK
69 Contributors, 1321 pages. 226 Charts, Illustrations $10

PRODUCTION HANDBOOK
90 Contributors. 771 forms, charts, ills., 1676 pp. $10

● Send for these Handbooks. Save postage by remitting with order. Books returnable if not satisfactory. Dept. OM-2.

THE RONALD PRESS COMPANY
15 E. 26th Street, New York 10

Co., and Dr. Robert K. Burns, Executive officer, Industrial Relations Center, University of Chicago, will cover "Factors Influencing Employee Attitudes," and "Preparing Employees for Retirement," respectively.

The seminar program will end on Wednesday evening with the annual banquet, at which the principal speaker will be the Rev. William H. Alexander, of the First Christian Church, Oklahoma City. His topic will be, "Faith and Freedom."

The business show sponsored by OMAC in conjunction with the seminar will, as it has in past years, be held open for one day after the close of the seminar.

More than 120 companies providing office equipment, furniture, forms and supplies have already reserved exhibit space at the show.

Case—

(*From page* 34)

the user presses to contact other units hooked into the system.

Mr. Pinto says the hand-type receiver is a distinct design advantage, since it provides privacy of conversation. Previously, with a client in the office, Mr. Pinto was sometimes required to leave to receive privately some requested information regarding the client's policy or claim, or some confidential message from another executive. This embarrassing situation is now avoided, since with Modernphone only the person with the receiver can hear what is coming through the earpiece.

Further, he has discovered, during meetings or executive conferences the system can be used to obtain outside information or to receive important messages without disturbing the speaker or disrupting the session.

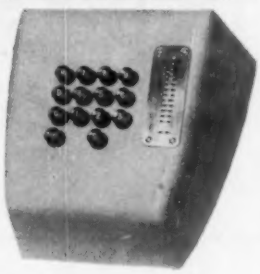
Equally important from an operations standpoint, the intercom system has appreciably reduced the number of meetings and conferences. Many of the quick decisions required in an insurance office are now obtained by reaching the various executives on an intercom conference call. And no one has to leave his desk.

"Considering how it has improved office efficiency and working atmosphere, we often wonder how we got along without an intercom system," Mr. Pinto said. "For us, it is standard office equipment, as essential to efficient operation as phones and typewriters and other office tools."

NEW!

Inexpensive Tape Perforator

For Common Language, Recording at the Source, Lightweight, Completely Portable, Electrical or Mechanical Operation.



THE Tapecorder

Will perforate 5, 6, or 7 channel tape numeric code with 4 special symbol keys. Completely trouble free.

The primary use of this machine will be to permit common language recording of data at its point of origin, such as in stock rooms, in warehouses, at points of sale, in mail order houses and in many other spots where a quantity of such devices are needed. They will be particularly useful when the equipment is not necessarily operated constantly.

Ideally suited for widespread use with your I D P (integrating data processing) project.

On order delivery $398.00

For further information write to

WENDON OFFICE EQUIPMENT MFG. CO.
17 Irving Avenue **Stamford, Conn.**

Do you use a
DIRECT PRINT COPY MACHINE?

Do you want
CLEARER, SPEEDIER COPIES?

Try →

This new master sheet

Patapar® Translucent Parchment

Patapar Translucent Parchment 27-45, a new type of Patapar Vegetable Parchment, was developed especially for use as master sheets (originals) for direct print copy machines.

Its clean, even texture and full translucency permits an intense vertical transmission of ultraviolet light which results in speedier operation and infinitely clear copies.

Note these other advantages:

- **Excellent writing surface.**
- **Its white color provides contrast and easy reading.**
- **Perfect for printing with regular or opaque inks, typewritten copy and pen or pencil entries.**
- **Price—*Patapar translucent Parchment doesn't cost—it pays!***

For proof of outstanding performance, write on your business letterhead for brochure containing testing samples. Name of nearest distributor on request.

Patapar®
Vegetable Parchment

Paterson Parchment Paper Company
Bristol, Pennsylvania
West Coast Plant:
340 Bryant St., San Francisco 7
Sales Offices: New York, Chicago
Headquarters for Vegetable Parchment since 1885

WHAT TO DO?

IN A RECENT issue of *Office Management,* W. H. Broderick, General Office Manager, Eclipse-Pioneer Division, Bendix Aviation Corporation, asked through this magazine's "What to Do?" department for suggestions on effective "follow-up" systems. Two letters received in answer to his query appear below:

Editor, *Office Management*
Dear Sir:

We use a standard printed "OUT" card, size 6" x 9⅜", Catalog No. 30-5901, or size 11¾" x 9½", Catalog No. 6047, available from the Library Bureau of Remington Rand Inc. More than likely, something of this type would also be available at any filing supply store.

Each time a piece of material is removed from files, its description, the requesting party's name and the date is entered on the "OUT" card which is then inserted in the file cabinet in place of the file removed. Papers to be followed are sent to central files with the notation in the upper right-end corner "Follow-up (date)." A file clerk writes an "OUT" card exactly as she would if the item were being removed from files, but instead of filing the card in the correspondence folder she files it in an open accounting card tray equipped with a set of 1-31 dividers and one or more sets of monthly dividers, depending on how many months in advance the follow-ups run. The "OUT" card is filed first under the month requested. At the end of each month all cards for the following month's follow-up are sorted by the day requested and filed in the 1-31 dividers which are always in the current month.

Each day she pulls cards for the following day, pulls the file requested, and inserts the already prepared "OUT" card in its place. When the file is returned the "OUT" card is so marked and laid aside for re-use.

Since the "OUT" card must be prepared before the item leaves the file unit, we have eliminated the usual extra step of preparing a 5 x 3 card for the follow-up index by making the "OUT"card serve both purposes.

Very truly yours,
G. D. Bollinger
Assistant to Business Manager
National Safety Council
Chicago, Illinois

Editor, *Office Management*
Dear Sir:

The appeal of Mr. Broderick for a fool-proof follow-up system is a large order: there is no such thing. Most follow-up ideas—I may as well say it—that I have tried are strong on "system" and weak on "follow-up."

The one essential is that it be the duty of some one to comb the file regularly, and unless this is done the system will fail. That means drudgery; nobody likes to do it and that puts the burden on the supervisory staff to see that it is done.

Yours very truly,
G. E. Johnson
Sales Agent
Greensboro, N. C.

3 POPULAR LABELING PRODUCTS

Perma-Stik
IT STAYS PUT

- - - **PERMA-STIK, the self-adhesive tube or strip-like label holder that is now open on three sides for greater utility. It will hold a card many times its own width. Very easy to use.**

FOR BINS AND SHELVES — Available in three sizes.

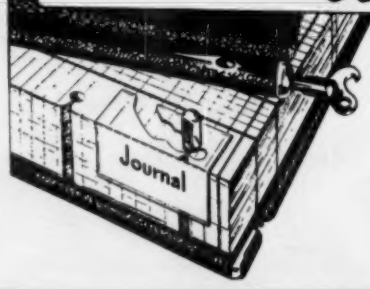
PS-½	½" x 6"	30c per ft.
PS-¾	¾" x 6"	35c per ft.
PS-1	1" x 6"	40c per ft.

FOR RING BINDERS

Smooth finished, durable metal construction—celluloid window protects and keeps label clean. Neat uniform appearance—lasts indefinitely.

SO-1	for 1" Ring Books	$0.25 each
SO-1½	for 1½" Ring Books	.30 each
SO-2	for 2" Ring Books	.35 each

SLIP-ON LABEL HOLDERS



FOR POST BINDERS

There is a Vinyl Plastic Label Holder for every type of open back binder. Will not warp or curl—made to Slip-On any size post.

PBS—½" x 2½"	$0.20 each
PBM—1" x 2½"	.25 each
PBL—2" x 2½"	.30 each

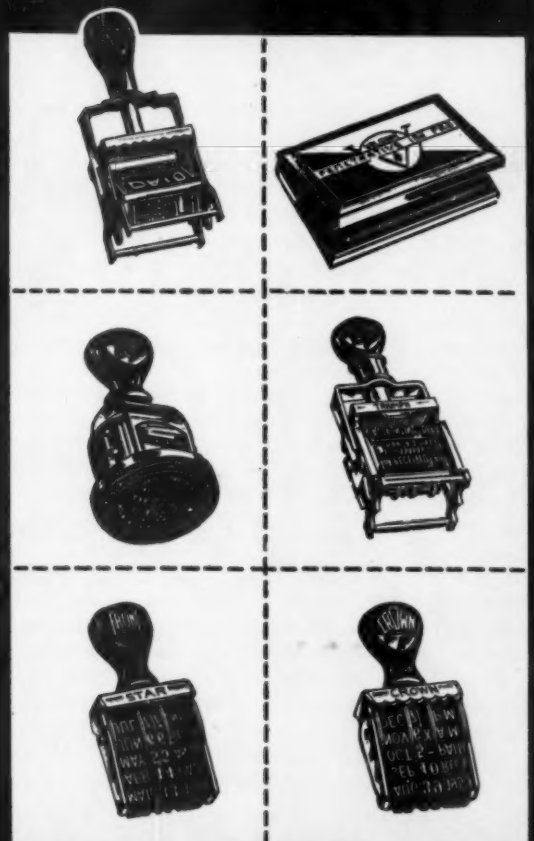
OFFICE PRODUCTS, INC.
9920 Freeland Ave. Detroit 27, Michigan
West Coast Distributor: Arch K. Ansty, 171 - 2nd St., San Francisco 5

Dating Stamps

Sold around the world!

THE CROWN LINE has been acclaimed by the trade, for its EXTRA QUALITY, as the FINEST MARKING DEVICES EVER MADE . . . CROWN products are made and designed to stand up under constant use without fear of breakdown.

For that Extra Quality . . . Economy . . . Efficiency . . . Faster Delivery . . . insist on the best line . . . "THE CROWN LINE!"



R. A. STEWART AND CO., INC.

80 Duane Street • New York 7, New York

Dutch Treat!

Perhaps your typists can't help making mistakes, but you can depend on Weldon Roberts Erasers —to "Correct Mistakes In Any Language." Weldon Roberts have been eraser specialists for 50 years — your assurance of the finest quality and styles designed for *your* work. Ask your stationer to show you.

WELDON ROBERTS RUBBER CO.
365 Sixth Avenue Newark 7, N. J.
World's Foremost Eraser Specialists

GRAYPOINT ERASER. *Quality gray rubber core in wood pencil casing. Sharpens easily with a knife or pencil sharpener. No. 365 plain end; No. 3650 with special plastic WHISK brush cap. For erasing typewriting, carbon copies, pencil writing.*

Weldon Roberts Erasers
Correct Mistakes in Any Language

ACCO

PAPER FASTENERS

The HEART of a good filing system

To Bind Papers Together
To Keep Perfect Order
To Prevent Loss

Make Acco Fasteners the basis of your filing system. They keep papers bound together—loose leaf style—preventing loss, mis-filing, wasted time. Use them alone, in Accobind Folders, or in Accopress Binders. Sizes for all standard loose leaf centers. Ask your stationer.

ACCO PRODUCTS, Inc.
Ogdensburg, N. Y.
In Canada: Acco Canadian Co., Ltd., Toronto

PAYCHECK "OUTLOOK" ENVELOPES

Eliminate Time and Expense of Addressing, also Chances for Errors

Paycheck "Outlook" Envelopes are absolutely opaque; essential when wages are paid by check: Nothing shows but the employee's name. This improves personnel relations.

THEN—you'll want to use "Outlook" envelopes for other purposes. All sizes and styles, with your choice of either glassine or cellulose transparency.

Write for samples and prices.

OUTLOOK ENVELOPE COMPANY
Originators of "Outlook" Envelopes. Est. 1902
1083 WASHINGTON BLVD., CHICAGO 7, ILL.

President M. R. Notaro, Statistical Tabulating Co. explains tabulating equipment to Chicago teachers.

Services cut tabulating load

ONE OF THE COUNTRY'S largest steel and wire manufacturers realized recently that it was developing a common business headache. Its clerical staff was growing in size, a seemingly unavoidable trend these days, and so was the cost of this type of personnel. The management called in an independent tabulating company. The company's methods engineers devised and installed a mechanical standard cost accounting system to replace the laborious manual operation which was necessary to make the swift internal cost calculations required each time the market price varied. The result was not only a speedup of the operation, but a saving in all the corporation's plants of $450,000 per year.

Today tabulating services are being used more and more by management as it realizes how such tabulating services can use their batteries of punch card accounting methods to cut down paperwork and clerical problems.

Take the case of a bedding company. This company desired to use punch card accounting, replacing laborious pencil calculations, for getting quick commission reports and product analyses. But there wasn't enough of this type of work to justify the high cost rental of the necessary machines. The answer was simple. A tabulating service was employed to handle the problem on a regular basis and at far lower cost.

Reasons for the tabulating service's advantages are easy to figure out. Such a service can spread capital, fixed, and operating costs over a great deal more use of today's high efficiency machines. In a good tabulating service, the machines run 24 hours a day. In fact, some of the most sensational rush jobs are those started at the close of the client's business on Friday, and completed before the reopening on Monday. As an example, the Statistical Tabulating Co. of Chicago produced over a weekend a sales analysis on "customer within salesmen" on 100,000 items covered by 50,000 invoices.

There is a coffee company which has its own punch card accounting system, yet it too uses a tabulating service regularly. The reason is that the tabulating service is a reserve that doesn't cost any money when it is not being used. The details are as follows:

This coffee company, like others, bills all sales at the end of the day. To do this, it uses a series of cards prepunched

(*To page* 85)

CALCULAGRAPH

keep tabs on costs

– with ACCURATE job time records

CALCULAGRAPH

figures elapsed time accurately

Reliable job time records are essential for compiling correct cost data, estimating reorders and checking on production efficiency. One sure way to secure accurate to the minute, dependable time costs is to use Calculagraph automatically-figured elapsed time records. Calculagraph gives you total elapsed time, starting and finishing time and date on a permanent, printed reference card. Eliminate losses due to inaccurate job time calculations by using Calculagraph to time your operations.

Write for full information today, to Dept. 334.

CALCULAGRAPH COMPANY
SUSSEX STREET, HARRISON, NEW JERSEY

"It's soooo easy to use..."

AVERY Kum-Kleen correction tape

for correcting fluid duplicator masters!"

QUICK, CLEAN, NEAT NO MESS, NO FUSS

And the boss will like it too — it saves him time and money. Yes–Avery Kum-Kleen Correction Tape easily solves fluid duplicator problems and serves a real need for a multitude of satisfied customers. There's no scraping, erasing or smearing — for corrections of fluid duplicator masters are quickly, easily and neatly made. Avery Correction tape is a proven product — available in either sheet or roll form.

Sheet form Avery Correction Tape can be kept close at hand in desk drawer for instant use. It's available in sheet form in acetate covered packages. Two popular widths — 1/6" for single line corrections and 2/6" for two line corrections.

Rolls of Kum-Kleen Correction Tape, ready for use in a handy Kum-Kleen tape dispenser, are boxed in 1/6", 2/6" and 5/6" widths.

1. PRESS ON reverse side of master over part to be corrected. Needs no moistening . . . it's just LAID ON with a finger-touch.

2. TYPE ON with a light touch, using the same carbon. No need to remove the master from the typewriter . . . no realigning.

DEALERS—Keep adequate stocks of fast selling Avery Correction Tape. Build sales with Avery's free advertising aids — displays, mats, literature. See the Avery salesman —or write for samples!

AVERY ADHESIVE LABEL CORP., DIV. 151
117 Liberty St., New York 6 608 S. Dearborn St., Chicago 5
1616 California Ave., Monrovia, California
Offices in Other Principal Cities

Please send me samples of Avery Kum-Kleen Correction Tape

My Name_____
Company_____
Address_____
City_____ State_____

GUSSCO

THE HANGING FOLDER WITH ADJUSTABLE METAL TAB

Guide-O-folder
*T. M. Reg.

Your "filing and finding" problems disappear when you use Guide-O-folders in your active files. Not only do you save both time and money but you remove the drudgery from the filing department and make it a pleasant place to work.

You will appreciate the speed and accuracy with which your records are filed and kept instantly available for reference. Your clerks will appreciate the ease and accuracy because all the tugging and pulling of ordinary folders is eliminated. Guide-O-folders just glide back and forth on their steel frames with finger tip ease.

Ask your local stationer or office equipment dealer to show you how Guide-O-folders will solve your filing and finding problems.

GUIDE SYSTEM & SUPPLY CO.
335 Canal Street — New York 13, N. Y.

The *Pelouze Princess . . .*

the compact, accurate postal scale for every desk in your office

Dependable, accurate, easy to read, shows exact postage for all classes of mail. Only 4" high, attractive 2-tone enamel finish, plastic base, chrome platform, all gray or gray and maroon. Weighs up to 1 lb. by ounces. Only $2.95 even on West Coast. Not just another "cheap" scale but one of a complete line of accurate postal scales for every mailing or shipping purpose.

Stocked by all leading stationers

N-1 Princess
Size: 4" high x 3½" x 2" wide

PELOUZE MANUFACTURING CO.
1208 CHICAGO AVE. — EVANSTON, ILL.

FOR ALL TRAVELERS

by train, bus, plane or automobile, whether for pleasure, on private business or government service,

BEACH'S
"Common Sense"
Expense Books and Sheets

are best for keeping track of expense. There is a Personal Expense Book, too, for records at home.

Beach Publishing Co.
7338 Woodward Ave., Detroit 2, Mich.

CLASSIFIED ADVERTISING

Rates are 15c a word. Minimum charge $3.00. Payable in advance. Address replies to all Box Number ads c/o OFFICE MANAGEMENT, 212 Fifth Ave., New York 10, N. Y.

For Sale or To Buy Used Equipment

WANTED—ALL TYPES OFFICE Machines, Filing Equipment, Office Furniture, Kardex, Acme, Postindex. Will exceed manufacturers' trade-in allowances. Write, Wire. National Office Equipment Co., 429 Broome St., New York 13, N. Y.

ELLIOT 100 TRAY CABINET and manual Cardvertiser machine almost new. Used two years. D. B. Bassett, 270 Dartmouth St., Boston, Mass.

VISIBLE FILING EQUIPMENT, Kardex, Acme, Postindex, etc. All equipment thoroughly rebuilt and guaranteed. Commercial Card Systems Co., 135 Grand St., New York 13, N. Y.

CALCULATORS AND ADDING MACHINES Wanted, all makes. State make, model, serial number and adding capacity. International Office Appliances Inc., 326 Broadway, New York 7, N. Y.

USED, RECONDITIONED A. B. Dick mimeographs. Hand operated. Model 91, 92, 430 and one No. 91 electric. Hastings Typewriter Co., 518 W. Third St., Hastings, Nebraska.

Business Opportunities

WRITER, 7 years' experience, will work on free-lance basis; reports, editorial, publicity and advertising copy; re-write editing. O. M. 174

WE DESIGN, EDIT and Produce House Magazines for business organizations in the east—employee or external. We perform all editorial functions — see each issue through to completion. Also skilled in preparation and presentation of office reports. Kim Darby & Associates, 5 Beekman St., New York 38, N. Y.

Positions Wanted

TOP ADMINISTRATIVE EXECUTIVE with large corporation, experienced in all phases of Office Managerial responsibilities with particular emphasis on Marketing, Sales Analysis and Advertising and Marketing Co-ordination. Outstanding experience in NOMA activities. College graduate. Excellent Public Speaker. Mature. Available in 60 days. O.M. 177.

Genuine Engraved **Letterheads**

FREE DESIGN PROOFS DIE

$12.00 FOR 1000

MAIL US YOUR LETTERHEAD
PROOF · MAILED PROMPTLY
NO OBLIGATION

DEWBERRY ENGRAVING CO.
801 SO. 20TH STREET · BIRMINGHAM 5, ALABAMA
America's Largest Engraver of Fine Stationery

TOP MANAGEMENT SEMINARS

Limited attendance — **Unlimited Subject-Coverage**
9 A. M. to 5 P. M. — **Five-day Sessions**

- Electronic Computers—Applications and Limitations
- Office Mechanization Standards
- Job Evaluation and Performance Rating
- Supervision and the Supervisor
- Operations Research—Tools, Techniques
- Other Subjects

Seminars held every month except December and January.

Write: Hugh A. Warner
Formerly technical director,
National Office Management Association
Box 19, Route 4, Elkridge 27, Md.
Phone: Elkridge Maryland 715J

(*Continued from page* 82)

at the prevailing price for every possible size of order. The accounting department personnel have these cards in honeycombs and merely select the appropriate cards for the tabulating machines and billing process.

When the market changes in New York, 45,000 cards must be changed that day. The company cannot afford to keep enough machines and personnel to handle a job like this standing around waiting for the price to change. Instead, it sends out a quick call to the tabulating service at 11 A.M., and a complete batch of new price cards is delivered by 5 P.M.

Large companies also use tabulating services as adjuncts to their office staffs. One of the nation's largest plumbing equipment corporations uses a tabulating service which actually is much smaller than the company's own punch card accounting operation. But when inventory time comes, the corporation calls in the tabulating service to handle the whole operation. Cards are made up for each item in the corporation's huge line, shipped to each of the 150 branches for a count, and then tabulated. The corporation has its inventory back in an incredibly short time. Its own punch card accounting departments have been operating normally meanwhile, with no time- and money-consuming disruptions or problems.

This capacity of tabulating services to handle peak loads that otherwise would involve unbearable full-year overhead is one of their standard functions. They not only handle inventories, but they handle seasonal jobs, such as the sales analysis for a department store in a heavy selling period. In this case the store's own tabulating department works its normal load. The extra work is sent to the tabulating service daily and is returned in perfect synchronization with the company's work from its own department.

Small companies use tabulating services nowadays as their office staff; and small insurance company bookwork is becoming a specialty in some tabulating services. The tabulating service offers a package deal which handles every bit of the clerical, accounting, and bookkeeping work, ranging from answering letters to keeping a ledger and giving production reports. All the insurance salesman has to do is to sell insurance. One company, for example, handles fifty agencies of varying sizes.

The functions of a tabulating service can be as complicated as producing a machine analysis or as simple as taking on the typing for a one-girl office when the girl is ill.

Tabulating services can be used by business in a variety of ways to avoid bloodshed, as office management adopts revolutionary methods to attack its growing clerical problem.

A Time-Saving "DUX" On Every Desk

Precision Pencil Sharpeners

speedily sharpens:
Fat pencils, slim pencils, soft leads, hard leads. Repoints crayons and chalks.

Available at all leading Office Supply & Stationery Stores.

Exclusive Distributor
Fred Baumgarten
675 Cooledge Ave.
Atlanta 6, Georgia

Activate Control Systems with Cellugraf TRANSPARENT SIGNALS for VISIBLE RECORDS

Nu-Vise PROJECTING SIGNALS for VERTICAL RECORDS

Depend on Graffco products to call for the right action at the right time . . . every time. Facts come to life, stand out, flag attention. A variety of colors and shapes to control any classification. Ask your dealer about them.

GEORGE B. GRAFF COMPANY
54 Washburn Ave., Cambridge 40, Mass.

Maptacks for CHARTS and MAPS

Graffco SIGNALS and MAPTACKS
Keep BUSINESS Under Control

Envelope and Paper Corporation
121 VARICK STREET • NEW YORK 13, N.Y. • CHelsea 2-6432

FREE

Send attached coupon for handy illustrated folder describing all types of envelopes.

GET OUR PRICES AND COMPARE

ENVELOPE AND PAPER CORPORATION
121 Varick St., New York 13, N. Y.
Attn: Dept. O2 Date_____

☐ Send me illustrated envelope folder.

Name_____

Company_____

Address_____

Simple test demonstrates file-hardness of Bassick caster

Pre-test caster wear before you buy

Now you don't have to wonder how long Bassick casters will stand up on your office furniture.

Get yourself a file and *prove it*. Bassick ball and raceway surfaces are case-hardened in special furnaces to 15N90 Rockwell hardness. They are so hard that the file won't cut them.

That's why Bassick's will last longer, perform better, on office chairs and furniture. Just another good reason why nationally advertised Bassick casters are going on more and more office equipment every day.

Smoother rolling, easier swivelling Bassick "Diamond-Arrow" line includes casters for wood and metal chairs, typewriter stands, etc. With "Baco" rubber tread or "Atlasite" hard composition wheels.

THE BASSICK COMPANY, Bridgeport, 2, Conn. *In Canada:* Belleville, Ont.

Bassick

A DIVISION OF STEWART SW WARNER

MAKING MORE KINDS OF CASTERS... MAKING CASTERS DO MORE

75 YEARS OF CASTER LEADERSHIP

ADVERTISERS' INDEX

A

Acco Products, Inc. 82
Agency—La Porte & Austin, Inc.
Ace Fastener Corp. 72
Agency—The Vanden Co., Inc.
Allen Business Machines, Inc. R. C. 64
Agency—Wesley Aves & Assoc., Inc.
American Telephone & Telegraph Co. 3
Agency—N. W. Ayer & Son, Inc.
Arrow Fastener Co., Inc...... 70
Agency—Edward Sigler Adv.
Avery Adhesive Label Corp.... 83
Agency—Martin R. Klitten Co., Inc.

B

Bankers Box Co. 78
Agency—Frank C. Jacobi Adv.
Bassick Co., The 86
Agency—James Thomas Chirurg Co., Inc.
Baumgarten, Fred..... 85
Agency—J. Howard Allison & Co.
Beach Publishing Co. 84

C

Calculagraph Co. 83
Agency—George Homer Martin Assoc.
Challenge Machinery Co. 77
Agency—Illinois Simmonds & Simmonds, Inc.
Clary Multiplier Corp. 35
Agency—Erwin, Wasey & Co., Ltd.
Commercial Controls Corp. ... 67
Agency — Hutchins Advertising Co.
Corry-Jamestown Mfg. Corp. 11, 12
Agency—Walker & Downing, General Agy.
Cummins—Chicago Corp. 62
Agency—Aubrey, Finlay, Marley & Hodgson, Inc.

D

Dewberry Engraving Co...... 84
Dick Co., A. B. 6
Agency—Fuller & Smith & Ross, Inc.
DuPont de Nemours & Co., E. I. 45, 46, 47, 48
Agency—Batten, Barton, Durstine & Osborn, Inc.

E

Envelope & Paper Corp. 85
Esterbrook Pen Co., Inc. 68
Agency—The Aitkin-Kynett Co.
Executive Furniture Co. 69
Agency—Glenn Advertising, Inc.

F

Faber Pencil Co., Eberhard ... 41
Agency—Anderson & Cairns, Inc.
Felt & Tarrant Mfg. Co., Comptometer Div. 59
Agency—N. W. Ayer & Son, Inc.

G

Globe-Wernicke Co., The 40
Agency—Strauchen & McKim Adv.
Graff Co., George B. 85
Agency—Eddy-Rucker-Nickels Co., The
Graphic Systems 72
Agency—Diener & Dorskind, Inc.
Guide System & Supply Co.... 84

H

Haloid Co., The 8
Agency—Hutchins Adv. Co., Inc.
Hammermill Paper Co. 39
Agency—Batten, Barton, Durstine & Osborn, Inc.
Harter Corp., The 44
Agency—Lamport, Fox, Prell & Dolk, Inc.
Heyer Corp., The 72
Agency—Frank C. Jacobi Adv.

I

Industrial Tape Corp. 65
Agency—The Aitkin-Kynett Co.

M

Macey-Fowler, Inc. 4
Agency—Givaudan Adv., Inc.
Management Control Charts Co. 78
Agency—Scantlin & Co.
Merriam Co., G. & C. 66
Agency—Horton-Noyes Co.

N

National Cash Register Co., The 7
Agency—McCann-Erickson, Inc.
Nekoosa-Edwards Paper Co. 3rd Cover
Agency—Cramer-Krasselt Co., The

O

Office Management 42
Office Management Assoc. of Chicago 10
Agency—J. R. Pershall Co.
Office Products, Inc. 80
Old Town Corp. 37
Agency—Charles W. Hoyt Co., Inc.
Olivetti Corp. of America 43
Agency—Geyer Advertising, Inc.
Outlook Envelope Co. 82
Agency—Arthur C. Barnett Adv.

P

Paterson Parchment Paper Co. 79
Agency—Grant & Wadsworth, Inc.
Peerless Photo Products, Inc. 74
Agency—John Mather Lupton Co.
Pelouze Mfg. Co. 84
Agency—Ross Llewellyn, Inc.
Permacel Tape Corp. 65
Agency—The Aitkin-Kynett Co.
Plymouth Rubber Co., Inc. ... 76
Agency—Hirshon-Garfield, Inc.

R

Remington Rand, Inc...2nd Cover
Agency—Leeford Adv. Agency, Inc.
Reynolds & Reynolds Co., The 71
Agency—Weber, Geiger & Kalat, Inc.
Roberts Rubber Co., Weldon.. 81
Agency—La Porte & Austin, Inc.
Ronald Press Co., The 78
Royal Metal Mfg. Co. 9
Agency—Kuttner & Kuttner, Inc.
Rudd-Melikian, Inc. 63
Agency—Geare-Marston, Adv.

S

Scribe Corp. 73
Agency—Henri, Hurst & McDonald, Inc.
Shwayder Bros., Inc. 72
Agency—Grey Advtg. Agency, Inc.
Smead Mfg. Co., Inc., The ... 61
Staplex Co., The 78
Agency—Lee Keeler, Inc.
Stewart & Co., Inc., R. A. 81
Agency—Harry Belfor Agency

U

Underwood Corp. .... 4th Cover
Agency—Brooke, Smith, French & Dorrance, Inc.

V

Victor Safe & Equipment Co., Inc., The 75
Agency—Leeford Adv. Agency, Inc.

W

Warner, Hugh A...... 84
Wendon Office Equipment Co. 70, 74, 79

Nekoosa ...first choice in TRANSLUCENT PAPER *for* DIRECT-PRINT COPY MACHINES

IN THE NEW, EASY-TO-OPEN CARTON!

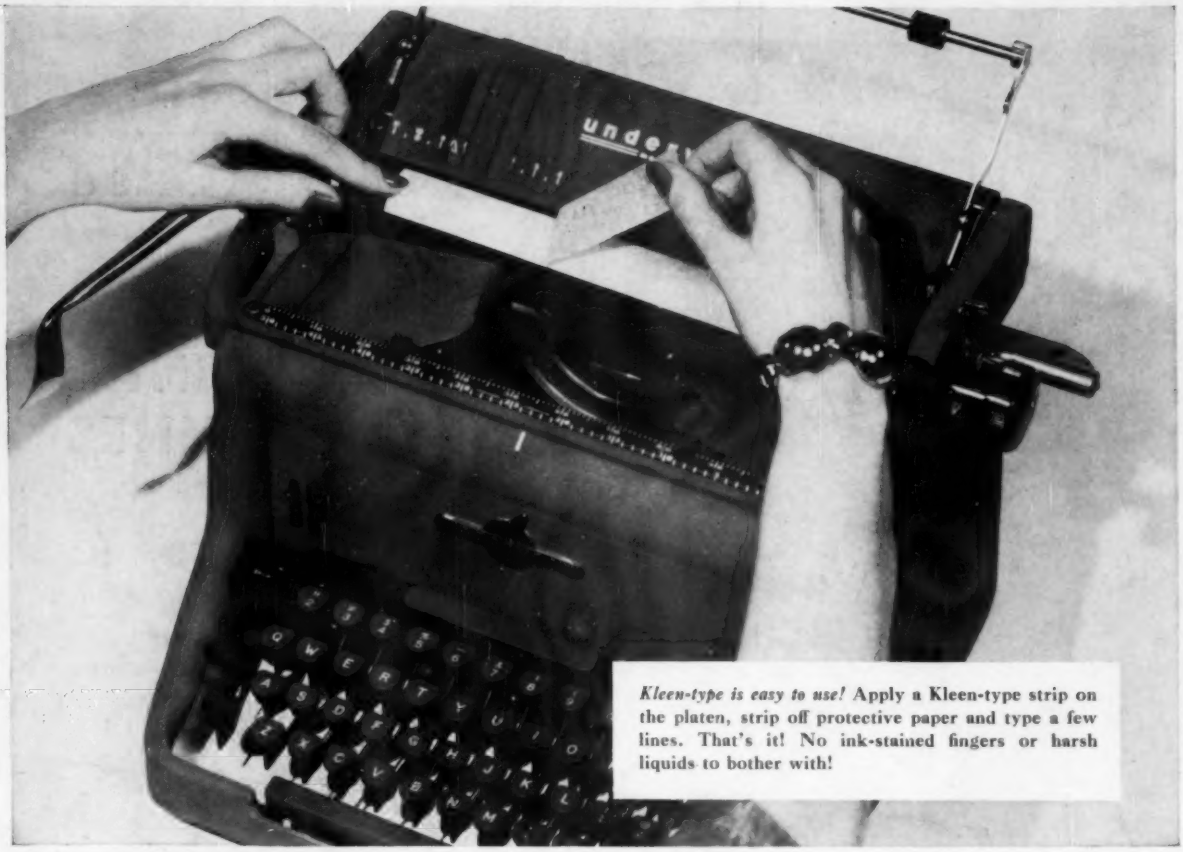
Nekoosa Master-Lucent comes in the easiest-opening carton you've ever seen! Just pull the convenient tear-strip and the carton top is off in a jiffy!

Your first trial of NEKOOSA MASTER-LUCENT will tell you that here is a master paper designed to meet your most exacting direct-print requirements. Nekoosa Master-Lucent makes copies *faster* because light passes through faster. Nekoosa Master-Lucent is *stronger* to withstand erasures and constant handling. And you always get *clean* copies because Nekoosa Master-Lucent is *made clean* in America's most modern paper mills. Available from your Nekoosa paper merchant in a variety of standard sizes for all office needs.

ANOTHER Nekoosa PAPER

by the makers of... **NEKOOSA BOND • NEKOOSA LEDGER • NEKOOSA MIMEO NEKOOSA DUPLICATOR • NEKOOSA MANIFOLD**

NEKOOSA-EDWARDS PAPER COMPANY • PORT EDWARDS, WISCONSIN



Kleen-type is easy to use! Apply a Kleen-type strip on the platen, strip off protective paper and type a few lines. That's it! No ink-stained fingers or harsh liquids to bother with!

Underwood announces a revolutionary new kind of type cleaner—Kleen-type!

Now! Put an end to the mess and bother of cleaning type the time-consuming old-fashioned way. Your Underwood man will show you how to get cleaner, better looking letters with new Kleen-type.

This new type cleaner is truly revolutionary. You simply apply a Kleen-type strip to the platen of the typewriter, set the ribbon at stencil position, and type a few lines. That's all there is to it. Kleen-type cleans as you type! The special chemical coating picks up ink, dirt and lint from the keys. Best of all, Kleen-type can be used over and over again!

Write on your business letterhead and we will be glad to send you a *free* sample!

UNDERWOOD UNDERWOOD CORPORATION

One Park Avenue, New York 16, N. Y.

Your Underwood man will show you how to end dirty, blurred, hard to read type like this.

After using Kleen-type, typing has a clean-cut quality look. Economical to use, Kleen-type saves time and typists' tempers! Write for a free sample!